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Supplementary Table 1: Excluded studies at full-text extraction, with reasons for exclusion

Primary author	Year	Journal	Title	Reason for exclusion
Alomar	1992	Arznei-forschung	Multi-centre double-blind trial on the efficacy and safety of sertaconazole 2% cream in comparison with miconazole 2% cream on patients suffering from cutaneous mycoses	Incorrect study design; not a non-inferiority trial
Denning	2006	J Infection	Micafungin (FK463), alone or in combination with other systemic antifungal agents, for the treatment of acute invasive aspergillosis	Incorrect study design; not a non-inferiority trial
Fischer	2013	Transplant Int	Micafungin as antifungal prophylaxis in high-risk liver transplantation: a randomised multicentre trial	Duplicate publication of included study (Saliba 2015)
Gobbato	2018	Int J Pharmacol Clin Ther	Dapaconazole versus ketoconazole in the treatment of interdigital tinea pedis	Phase II RCT
Goswami	2020	Am J Trop Med Hyg	Combination Therapy Against Indian Visceral Leishmaniasis with Liposomal Amphotericin B (FungisomeTM) and Short-Course Miltefosine in Comparison to Miltefosine Monotherapy	Incorrect study population; use of antifungal to treat parasitic infection
Kontoyiannis	2009	Transpl Infect Dis	Micafungin alone or in combination with other systemic antifungal therapies in hematopoietic stem cell transplant recipients with invasive aspergillosis	Incorrect study design; not a head-to-head comparison of different antifungals
López-Olmos	2003	Clin Invest Ginecol Obstet	Comparación de fenticonazol frente a sertaconazol en dosis única para el tratamiento de las candidiasis vulvovaginales: estudio prospectivo y multicéntrico de un año	Incorrect study design; not a non-inferiority trial
MK-5592-069	2020	n/a	A Study of the Safety and Efficacy of Posaconazole Versus Voriconazole for the Treatment of Invasive Aspergillosis (MK-5592-069)	Unpublished data as of date of systematic review
Park	2006	Korean J Int Med	Intravenous itraconazole vs. amphotericin B deoxycholate for empirical antifungal therapy in patients with persistent neutropenic fever	Incorrect study design; case-control study
Pedragosa	1992	Arznei-forschung	Therapeutic efficacy and safety of the new antimycotic sertaconazole in the treatment of cutaneous dermatophytosis	Incorrect study design; not a non-inferiority trial
Ullmann	2006	Clin Infect Dis	Prospective Study of Amphotericin B Formulations in Immunocompromised Patients in 4 European Countries	Incorrect study design; observational trial
White	1998	Clin Infect Dis	Randomized, double-blind clinical trial of amphotericin B colloidal dispersion vs. amphotericin B in the empirical treatment of fever and neutropenia	Incorrect study design; not a non-inferiority trial

Supplementary Table 2: Characteristics of Included Studies (*n* = 32)

Reference	Study Period and Population	Study Blinding	Infectious syndrome	Treatment arm (*n*)	Control arm (*n*)	Primary outcome	Non-inferiority margin	Results, point estimate (95% CI)	Author's conclusion	Conclusion by data
Benjamin 2018 (1)	2013-2014 Children	Double blind	Candidiasis	Micafungin IV (20)	AmB deoxycholate IV (10)	Fungal-free survival	20%	Not reported	Noninferiority shown	Unable to determine
Buechner 2014 (2)	n/a Adults	Double blind	Cutaneous mycosis	Miconazole shampoo (145)	Ketoconazole shampoo (129)	Reduction in symptom scale	-1 unit on analog scale	PP: 0.009 (-0.684, 0.703)	Noninferiority shown	Noninferiority shown
Chosidow 2003 (3)	n/a Adults	Open label	Cutaneous mycosis	Ciclopiroxolamine cream (154)	Ketoconazole gel (149)	28-day clinical response	15%	ITT: 2.78 (-7.99, 13.56) PP: 3.22 (-8.06, 14.5)	Noninferiority shown	Noninferiority shown
Cornely 2007 (4)	2002-2005 Children and adults	Unclear	Prophylaxis, non-transplant	Posaconazole (304)	Fluconazole or itraconazole (298)	Proven/probable IFI during treatment	4%	ITT: -6 (-9.7, -2.5)	Superiority shown	Superiority shown
de la Paz Cota 2018 (5)	2013-2014 Adults	Double blind	Otomycosis	Eberconazole drops (95)	Clotrimazole drops (95)	Complete response	10%	ITT: -1.7 (-11.4, 7.9)	Noninferiority rejected	Noninferiority rejected
de Wet 2004 (6)	n/a Adults	Double blind	Candidiasis	Micafungin IV (260)	Fluconazole IV (258)	Endoscopic cure rate	10%	ITT: -0.3 (-5.9, 5.3)	Noninferiority shown	Noninferiority shown
Huang 2012 (7)	2008-2009 Adults	Open label	Prophylaxis, transplant	Micafungin IV (136)	Itraconazole IV (147)	Treatment success	10%	ITT: -2.04 (-7.562, 3.482) PP: -0.86 (-7.489, 5.767)	Noninferiority shown	Noninferiority shown
Jeong 2016 (8)	2012-2014 Adults	Unclear	Febrile neutropenia	Micafungin IV (73)	Itraconazole IV (75)	Treatment success	10%	ITT: 7.10 (no CI given)	Noninferiority shown	Unable to determine
Kang 2020 (9)	2012-2015 Adults	Open label	Prophylaxis, transplant	Micafungin IV (69)	Fluconazole IV (77)	Clinical success	10%	PP: -0.45 (-6.93, 5.59)	Noninferiority shown	Noninferiority shown
Kohno 2010 (10)	2006-2008 Adults	Open label	Aspergillosis	Micafungin IV (53)	Voriconazole IV (54)	Treatment response	15%	ITT: 10.3 (-8.63, 29.25) PP: 6.8 (-12.92, 26.54)	Noninferiority shown	Noninferiority rejected
Krause 2004 (11)	2001-2002 Adults	Double blind	Candidiasis	Anidulafungin IV (249)	Fluconazole PO (255)	Endoscopic response	10%	ITT: -1.3 (-6.7, 3.9) PP: -1.6 (-4.1, 0.8)	Noninferiority shown	Noninferiority shown
Kullberg 2005 (12)	1998-2003 Children and adults	Open label	Candidemia	Voriconazole IV (240)	AmB IV f/b fluconazole IV (120)	Mycologic eradication and clinical cure	15%	mITT: 0 (-10.6, 10.6)	Noninferiority shown	Noninferiority shown

Kullberg 2019 (13)	n/a Adults	Double blind	Candidiasis	Isavuconazole IV (199)	Caspofungin IV (201)	Mycologic eradication and clinical cure	15%	mITT: -10.8 (-19.9, -1.8)	Noninferiority rejected	Noninferiority rejected
Kuse 2007 (14)	2003-2004 Adults	Double blind	Candidiasis	Micafungin IV (202)	Liposomal AmB IV (190)	Treatment success	15%	ITT: 3.9 (-3.9, 11.6) mITT: 4.9 (-3, 12.8) PP: 0.7 (-5.3, 6.7)	Noninferiority shown	Noninferiority shown
Le 2017 (15)	2012-2015 Adults	Open label	Talaromycosis	Itraconazole IV (217)	AmB deoxycholate IV (218)	2-week all-cause mortality	10%	ITT: 0.9 (-3.9, 5.6) mITT: 2.2 (-2.4, 6.8) PP: 1.6 (-3, 6.2)	Superiority shown	Noninferiority shown
Maertens 2016 (16)	2007-2013 Adults	Double blind	Invasive mould infection	Isavuconazole IV (258)	Voriconazole IV (258)	42-day all-cause mortality	10%	ITT: -1 (-7.8, 5.7) mITT: -2.6 (-12.2, 6.9)	Noninferiority shown	Unable to determine
Marks 2010 (17)	2006-2009 Children and adults	Open label	Prophylaxis, transplant	Voriconazole IV (224)	Itraconazole IV (241)	Success of prophylaxis	10%	mITT: 16.4 (7.7, 25.1)	Superiority shown	Superiority shown
Mersal 2013 (18)	2011-2012 Children	Unclear	Prophylaxis, extremely low birth weight	Nystatin PO (24)	Fluconazole IV (33)	Incidence of invasive *Candida* infection	15%	Not reported	Noninferiority shown	Unable to determine
Molloy 2018 (19)	2013-2016 Adults	Open label	Cryptococcosis	Fluconazole and flucytosine PO (225)	AmB IV and either fluconazole or flucytosine PO (453)	2-week all-cause mortality	10%	ITT: -3.18 (-10.50, 4.15) PP: -3.44 (-10.88, 4.00)	Noninferiority shown	Unable to determine
Mora-Duarte 2002 (20)	1997-2001 Adults	Double blind	Candidiasis	Caspofungin IV followed by either caspofungin IV or fluconazole PO (109)	AmB deoxycholate f/b AmB deoxycholate or fluconazole PO (115)	Overall response	20%	mITT: 12.7 (-0.7, 26) PP: 15.4 (1.1, 29.7)	Superiority shown	Noninferiority shown
Pappas 2007 (21)	2004-2006 Adults	Double blind	Candidiasis	Micafungin IV f/b optional fluconazole PO (390)	Caspofungin IV f/b optional fluconazole PO (188)	Treatment success	15%	Micafungin 100mg mITT: 4.1 (-4.4, 12.3) Micafungin 200mg mITT: -1.0 (-9.3, 7.8)	Noninferiority shown	Noninferiority shown
Queiroz-Telles 2008 (22)	2003-2005 Children	Double blind	Candidiasis	Micafungin IV (48)	Liposomal AmB IV (50)	Treatment success	Not reported	mITT: -2.4 (-20.1, 15.3) PP: -1.8 (-16.4, 12.7)	Noninferiority shown	Unable to determine
Reboli 2007 (23)	2003-2004 Adults	Double blind	Candidiasis	Anidulafungin IV (127)	Fluconazole IV (118)	Global response	20%	mITT: 15.4 (3.9, 27)	Superiority shown	Superiority shown
Rex 1994 (24)	1989-1993	Open label	Candidemia	Fluconazole IV (103)	AmB IV (103)	Treatment success	20%	ITT: -8 (-20, 3) mITT: -9 (-23, 5)	Noninferiority shown	Unable to determine

	Children and adults							PP: -11 (-18, 0)		
Saliba 2015 (25)	2009-2012 Adults	Open label	Prophylaxis, high-risk liver transplant	Micafungin (172)	Fluconazole or caspofungin or liposomal AmB IV (172)	Clinical success	10%	ITT: -2.9 (-8, 1.9) PP: 0.7 (-2.7, 4.4)	Noninferiority shown	Noninferiority shown
van Burik 2004 (26)	1999-2000 Children and adults	Double blind	Prophylaxis, hematopoietic stem cell transplant	Micafungin IV (425)	Fluconazole IV (457)	Treatment success	10%	mITT: 6.5 (0.9, 12)	Superiority shown	Superiority shown
Vazquez 2010 (27)	2006-2007 Adults	Double blind	Oropharyngeal candidiasis	Miconazole PO (290)	Clotrimazole PO (287)	Clinical cure	15%	ITT: -0.045 (-0.124, 0.034) PP: -0.059 (-0.14, 0.022)	Noninferiority shown	Noninferiority shown
Walsh 1999 (28)	1995-1996 Children and adults	Double blind	Febrile neutropenia	Liposomal AmB IV (343)	AmB IV (344)	Treatment success	10%	mITT: -0.7 (-1, 1)	Noninferiority shown	Noninferiority shown
Walsh 2002 (29)	1998-1999 Children and adults	Open label	Febrile neutropenia	Voriconazole IV (415)	Liposomal AmB IV (422)	Treatment success	10%	mITT: -4.5 (-10.6, 1.6)	Noninferiority shown	Noninferiority rejected
Walsh 2004 (30)	2000-2002 Adults	Double blind	Febrile neutropenia	Caspofungin IV (556)	Liposomal AmB IV (539)	Overall response	10%	mITT: 0.2 (-5.6, 6)	Noninferiority shown	Noninferiority shown
Yim 2010 (31)	2005 Children and adults	Double blind	Cutaneous mycosis	Fluconazole 0.5% cream (92) Fluconazole 1.0% cream (93)	Flutrimazole 1% cream (92)	Mycologic cure	20%	Fluconazole 0.5% cream PP: 0.8 (-17.2, upper bound not reported) Fluconazole 1.0% cream PP: 7.2 (5.6, upper bound not reported)	Noninferiority shown	Unable to determine
Yoshida 2020 (32)	2011-2015 Adults	Open label	Febrile neutropenia	Itraconazole IV (52)	Liposomal AmB IV (50)	Overall favourable response	10%	ITT: 0.04 (-0.15, 0.23)	Unable to determine	Unable to determine

Abbreviations: AmB = amphotericin B; f/b = followed by; ITT = intention-to-treat; mITT = modified intention-to-treat; PO = oral; PP = per-protocol; IV = intravenous

Supplementary Table 3: List of serial non-inferiority trials of invasive candidiasis

Pair	Trial 1: Antifungal B vs. A	Trial 2: Antifungal C vs. B
1	Mora-Duarte 2002 (20) Treatment arm: Caspofungin followed by continuation or fluconazole Comparison arm: Amphotericin B deoxycholate followed by continuation or fluconazole Syndrome: Invasive candidiasis Outcome: Overall response Risk difference: 12.7% 95% CI: -0.7% to 26%	Pappas 2007 (21) Treatment arm: Micafungin 100mg, then optional fluconazole Comparison arm: Caspofungin Syndrome: Invasive candidiasis Outcome: Treatment success Risk difference: 4.1% 95% CI: -4.4% to 12.3%
2	Mora-Duarte 2002 (20) Treatment arm: Caspofungin followed by continuation or fluconazole Comparison arm: Amphotericin B deoxycholate followed by continuation or fluconazole Syndrome: Invasive candidiasis Outcome: Overall response Risk difference: 12.7% 95% CI: -0.7% to 26%	Pappas 2007 (21) Treatment arm: Micafungin 150mg, then optional fluconazole Comparison arm: Caspofungin 150mg, then optional fluconazole Syndrome: Invasive candidiasis Outcome: Treatment success Risk difference: -1.0% 95% CI: -9.3% to 7.8%
3	Mora-Duarte 2002 (20) Treatment arm: Caspofungin followed by continuation or fluconazole Comparison arm: Amphotericin B deoxycholate followed by continuation or fluconazole Syndrome: Invasive candidiasis Outcome: Overall response Risk difference: 12.7% 95% CI: -0.7% to 26%	Kullberg 2019 (13) Treatment arm: Isavuconazole Comparison arm: Caspofungin Syndrome: Invasive candidiasis Outcome: Overall response in mITT population Risk difference: -10.8% 95% CI: -19.9% to -1.8%

Supplementary Table 4: Risk of bias assessment for individual included studies (RoB 2.0)

Low risk

Some concerns

High risk

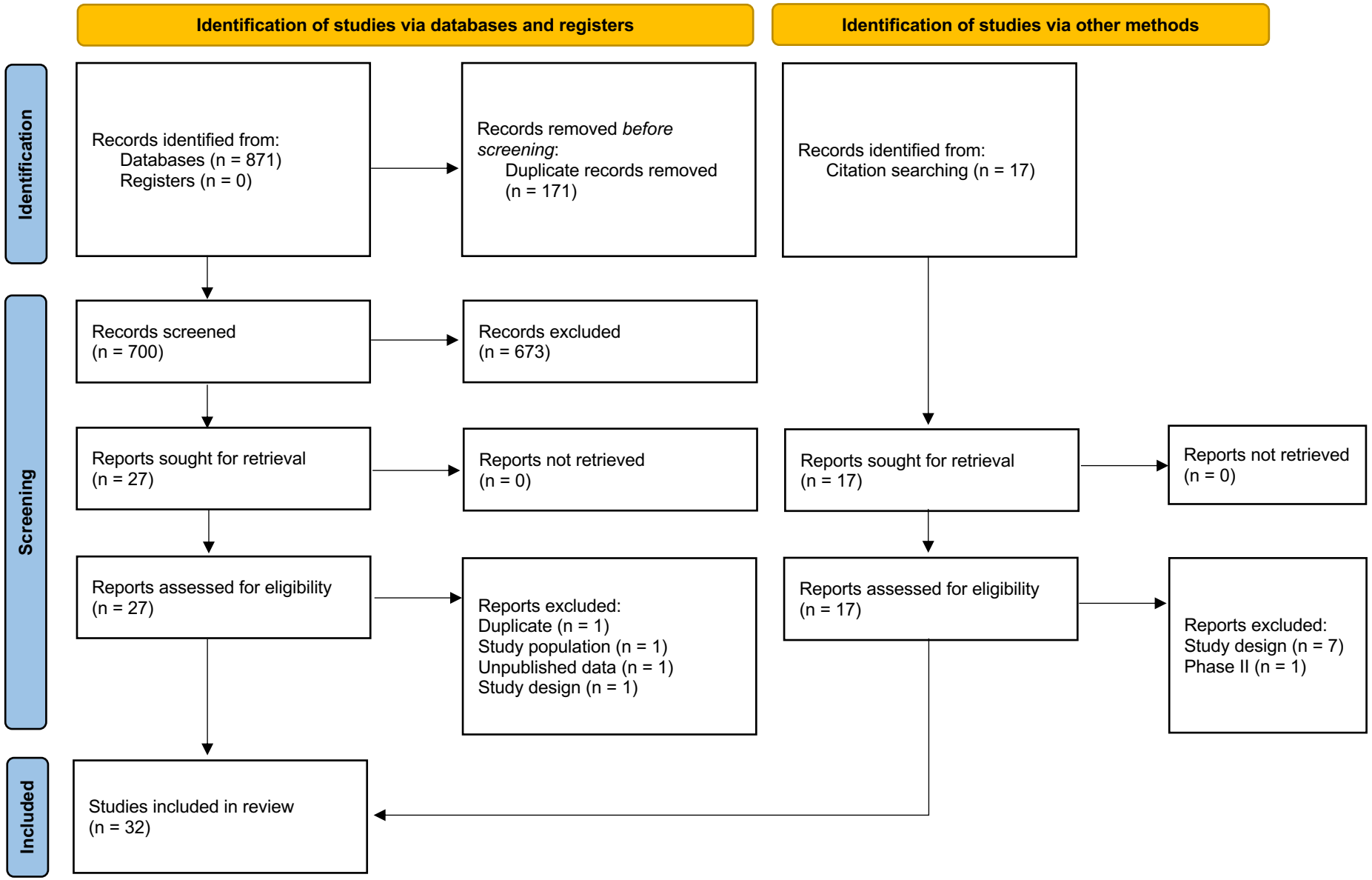
D1	Randomisation process
D2	Deviations from the intended interventions
D3	Missing outcome data
D4	Measurement of the outcome
D5	Selection of the reported result

Study	D1	D2	D3	D4	D5	Overall
Benjamin 2018	!	!	+	+	-	-
Buechner 2014	+	+	+	!	+	!
Chosidow 2003	+	!	+	+	+	!
Cornely 2007	-	!	+	+	+	-
de la Paz Cota 2018	+	+	+	+	-	-
de Wet 2004	+	+	+	+	+	+

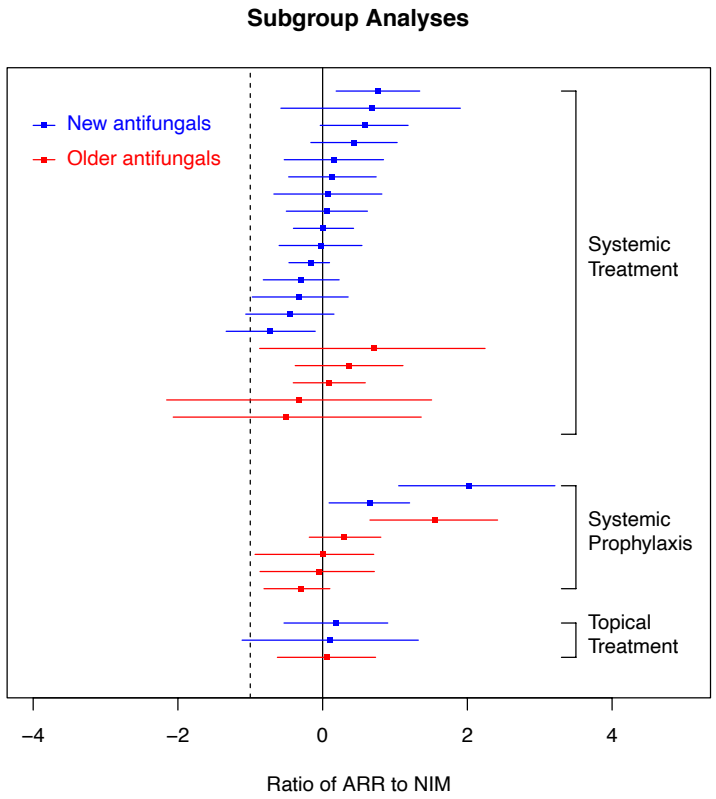
Huang 2012	!	!	+	!	+	!
Jeong 2016	+	!	+	!	-	-
Kang 2020	!	!	+	!	+	!
Kohno 2010	!	!	+	+	-	-
Krause 2004	+	+	+	+	+	+
Kullberg 2005	-	-	+	+	+	-
Kullberg 2019	!	+	+	+	+	!
Kuse 2007	+	+	!	+	+	!
Le 2017	+	!	+	+	+	!
Maertens 2016	!	+	+	+	+	!
Marks 2010	+	!	!	+	+	!
Mersal 2013	-	-	-	+	-	-
Molloy 2018	+	-	+	+	+	-
Mora-Duarte 2002	-	+	+	+	+	-
Pappas 2007	-	+	+	+	+	-
Queiroz-Telles 2008	!	+	+	+	-	-
Reboli 2007	-	+	-	+	-	-
Rex 1994	+	!	+	+	+	!

Saliba 2015	-	!	-	+	+	-
van Burik 2004	+	+	+	+	-	-
Vazquez 2010	!	+	-	+	+	-
Walsh 1999	+	+	+	+	+	+
Walsh 2002	!	!	+	+	+	!
Walsh 2004	!	+	+	+	+	!
Yim 2010	-	+	-	+	-	-
Yoshida 2020	!	+	+	+	+	!

Supplementary Figure 1: PRISMA Flow Diagram of Study Selection Process (33)

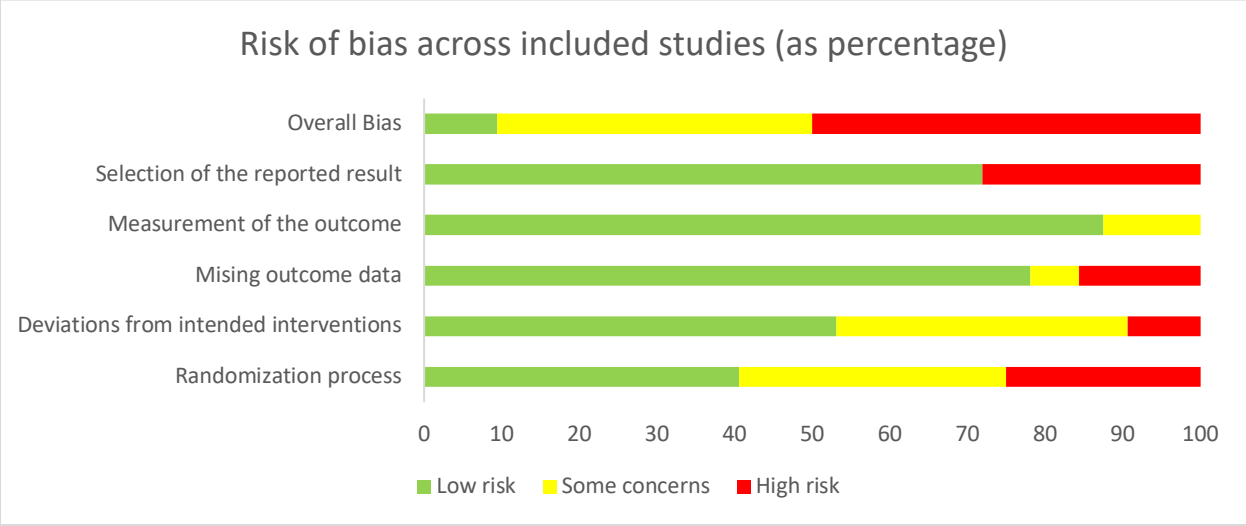


Supplementary Figure 2: Subgroup analyses of included studies, stratified by systemic treatment, systemic prophylaxis, and topical treatment antifungal non-inferiority RCTs



Systemic treatment trials: New antifungal NI-RCTs, in order from top to bottom: Reboli 2007, Kohno 2010, Mora-Duarte 2002, Rex 1994, Maertens 2016, Pappas 2007, Walsh 1999, Walsh 2004, Küse 2007, de Wet 2004, Krause 2004, Vazquez 2010, Kullberg 2005, Walsh 2002, Kullberg 2019. Older antifungal NI-RCTs, in order from top to bottom: Jeong 2016, Molloy 2018, Le 2017, Yoshida 2020, Benjamin 2018.
Systemic prophylaxis trials: New antifungal NI-RCTs, in order from top to bottom: Cornely 2007, van Burik 2004. Older antifungal NI-RCTs, in order from top to bottom: Marks 2011, Saliba 2015, Mersal 2013, Kang 2020, and Huang 2012.
Topical treatment trials: New antifungal NI-RCTs, in order from top to bottom: Chosidow 2003, de la Paz Cota 2018. Older antifungal trial represented in this section is Yim 2010.

Supplementary Figure 3: Risk of bias assessment across individual included studies (RoB 2.0)



Supplementary Text 1a: PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Supplementary Text 1b
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Introduction, paragraphs 1-3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Introduction, paragraph 4
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Materials and Methods, paragraph 2
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Materials and Methods, paragraph 1
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supplementary Text 2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Materials and Methods, paragraph 3
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Materials and Methods, paragraph 3
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Materials and Methods, paragraph 4
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Materials and Methods, paragraph 4
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Materials and Methods, paragraph 3
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Materials and Methods, paragraphs 6 and 7
Synthesis	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g.	Materials and Methods, paragraphs

Section and Topic	Item #	Checklist item	Location where item is reported
methods		tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	5-7
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Materials and Methods, paragraphs 5-7
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Materials and Methods, paragraphs 5-7, Figure 1
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Materials and Methods, paragraphs 5-7
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Not applicable
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Not applicable
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Materials and Methods, paragraph 4
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Not applicable
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Supplementary Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Supplementary Table 1
Study characteristics	17	Cite each included study and present its characteristics.	Table 1; Supplementary Table 2
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Supplementary Table 4; Supplementary Figure 1
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Figure 1, Supplementary Table 3
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Supplementary Figure 2, Supplementary Table 4
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Results, paragraphs 2-3

Section and Topic	Item #	Checklist item	Location where item is reported
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Not applicable
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Not applicable
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Supplementary Figure 2, Supplementary Table 4
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Not applicable
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Discussion, paragraph 1
	23b	Discuss any limitations of the evidence included in the review.	Discussion, paragraph 2
	23c	Discuss any limitations of the review processes used.	Discussion, paragraph 2
	23d	Discuss implications of the results for practice, policy, and future research.	Discussion, paragraph 3
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Materials and Methods, paragraph 1
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Materials and Methods, paragraph 1
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Not applicable
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Funding
Competing interests	26	Declare any competing interests of review authors.	Transparency declaration
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Data extracted from included studies and used for analysis in Appendix Tables 2 and 3

Adapted from Page *et al.* (33)

Supplementary Text 1b: PRISMA 2020 Checklist for Abstracts

Section and Topic	Item #	Checklist item	Reported (Yes/No)
TITLE			
Title	1	Identify the report as a systematic review.	Yes
BACKGROUND			
Objectives	2	Provide an explicit statement of the main objective(s) or question(s) the review addresses.	Yes
METHODS			
Eligibility criteria	3	Specify the inclusion and exclusion criteria for the review.	No (word count restriction)
Information sources	4	Specify the information sources (e.g. databases, registers) used to identify studies and the date when each was last searched.	No (word count restriction)
Risk of bias	5	Specify the methods used to assess risk of bias in the included studies.	No (word count restriction)
Synthesis of results	6	Specify the methods used to present and synthesise results.	No (word count restriction)
RESULTS			
Included studies	7	Give the total number of included studies and participants and summarise relevant characteristics of studies.	Yes
Synthesis of results	8	Present results for main outcomes, preferably indicating the number of included studies and participants for each. If meta-analysis was done, report the summary estimate and confidence/credible interval. If comparing groups, indicate the direction of the effect (i.e. which group is favoured).	No (word count restriction)
DISCUSSION			
Limitations of evidence	9	Provide a brief summary of the limitations of the evidence included in the review (e.g. study risk of bias, inconsistency and imprecision).	Yes
Interpretation	10	Provide a general interpretation of the results and important implications.	Yes
OTHER			
Funding	11	Specify the primary source of funding for the review.	No (word count restriction)
Registration	12	Provide the register name and registration number.	No (word count restriction)

Adapted from Page et al. (33).

Supplementary Text 2: Search strategies for MEDLINE, Embase, and Cochrane CENTRAL

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions(R) <1946 to September 9, 2020>
Search Strategy:
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1. non-inferiority trial.mp. or exp Equivalence Trial/
2. noninferior*.mp.
3. non-inferior*.mp.
4. 1 or 2 or 3
5. exp Antifungal Agents/
6. (antifungal* or anti-fungal*).mp.
7. (allylamine* or azole* or benzylamine* or echinocandin* or polyene* or oxaborole*).mp.
8. (amphotericin* or butenafine* or butoconazole* or caspofungin* or clotrimazole* or econazole* or efinaconazole* or fluconazole* or flucytosine* or ibrexafungerp* or isavuconazo* or itraconazole* or ketoconazole* or luliconazole* or micafungin* or miconazole* or naftifine* or nystatin* or oxiconazole* or posaconazole* or rezafungin* or sertaconazole* or tavaborole* or terbinafine* or terconazole* or tioconazole* or tolnaftate* or voriconazole*).mp.
9. 5 or 6 or 7 or 8
10. 4 and 9
11. ((randomized controlled trial or controlled clinical trial).pt. or randomized.ab. or randomised.ab. or
placebo.ab. or clinical trials as topic.sh. or randomly.ab. or trial.ti. or clinical trial*.mp.
or clinical trial.pt. or random*.mp.) not (animals not (humans and animals)).sh.
12. 10 and 11

Database: Embase <1974 to 2020 September 9>
Search Strategy:
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1. non-inferiority trial.mp. or exp Equivalence Trial/
2. noninferior*.mp.
3. non-inferior*.mp.
4. 1 or 2 or 3
5. exp Antifungal Agents/
6. (antifungal* or anti-fungal*).mp.
7. (allylamine* or azole* or benzylamine* or echinocandin* or polyene* or oxaborole*).mp.
8. (amphotericin* or butenafine* or butoconazole* or caspofungin* or clotrimazole* or econazole* or efinaconazole* or fluconazole* or flucytosine* or ibrexafungerp* or isavuconazo* or itraconazole* or ketoconazole* or luliconazole* or micafungin* or miconazole* or naftifine* or nystatin* or oxiconazole* or posaconazole* or rezafungin* or sertaconazole* or tavaborole* or terbinafine* or terconazole* or tioconazole* or tolnaftate* or voriconazole*).mp.
9. 5 or 6 or 7 or 8

10. 4 and 9
11. ((randomized controlled trial or controlled clinical trial).pt. or randomized.ab. or randomised.ab. or placebo.ab. or clinical trials as topic.sh. or randomly.ab. or trial.ti. or clinical trial*.mp. or clinical trial.pt. or random*.mp.) not (nonhumans not (human)).sh.
12. 10 and 11

Database: Cochrane CENTRAL
Search Strategy:
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non-inferiority trial OR non-inferior* OR noninferior*
AND
antifungal agents OR antifungal* OR anti-fungal* OR allylamine* OR azole* OR benzylamine* OR echinocandin* OR polyene* OR oxaborole* OR amphotericin* OR butenafine* OR butoconazole* OR caspofungin* OR clotrimazole* OR econazole* OR efinaconazole* OR fluconazole* OR flucytosine* OR ibrexafungerp* OR isavuconazo* OR itraconazole* OR ketoconazole* OR luliconazole* OR micafungin* OR miconazole* OR naftifine* OR nystatin* OR oxiconazole* OR posaconazole* OR resafungin* OR sertaconazole* OR tavaborole* OR terbinafine* OR terconazole* OR tioconazole* OR tolnaftate* OR voriconazole*

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