UK Health Security Agency

Laboratory surveillance of fungaemia due to yeasts in England: 2025

Health Protection Report
Volume 20 Number 6
June 2026

Contents

Introduction

Several taxonomic revisions to species previously classified in Candida have been implemented in the period covered by this health protection report (HPR) (1). The focus has therefore shifted from candidaemia in previous years to include bloodstream infections due to Candida and other yeast species (as listed in the data tables associated with this report) and will continue to evolve while the taxonomy of this group becomes more clearly defined. Bloodstream infections due to all yeast species included within this report will be referred to as fungaemia.

The analyses in this report are based on data relating to diagnoses of bloodstream infections due to yeasts between 2016 and 2025 in England. Data for England were extracted from the UK Health Security Agency's Second Generation Surveillance System (SGSS), a voluntary surveillance database, on 24 March 2026. In England, laboratories are requested to submit data individually to SGSS, with reporting based on clinically relevant isolates. As of April 6, 2025, *Candidozyma auris* (formerly *Candida auris*) is a mandatory notifiable organism in England, requiring laboratories to report all infections and colonisations to the UK Health Security Agency (UKHSA).

It should be noted that the data presented here for earlier years may differ from that in previous fungaemia publications due to the inclusion of late reports. The COVID-19 pandemic affected the general case-mix of hospital patients during much of 2020; this has likely impacted any trends reported here.

The report includes analyses on the trends, age and sex distribution, geographical distribution and antifungal susceptibility of laboratory-reported cases of fungaemia due to yeast species. Rates of fungaemia were calculated using mid-year resident population estimates for the respective year and geography (2). Geographical analyses were based on cases in England being assigned to one of 9 regions formed from administrative local authority boundaries.

A web appendix is available featuring the findings of this report.

Main points

Key findings from this report:

- between 2024 and 2025 there was a 6% increase in both the rate of fungaemia due to yeasts (3.9 to 4.1 per 100,000 population) and the number of laboratory reports (from 2,281 to 2,408 reports) in England
- between 2016 and 2025, the rate of fungaemia due to yeasts increased by 27% (from 3.2 to 4.1 per 10,000 population) and the number of laboratory reports increased by 35% (from 1786 to 2,408 reports)

- *C. albicans* was the most commonly reported cause of fungaemia in 2025, followed by *N. glabratus* (previously known as *Candida glabrata*) and *C. parapsilosis,* respectively
- reports of fungaemia due to *C. auris* in England remain low, though reports have increased following a decline during the COVID-19 pandemic period (2020 to 2021)
- rates of bloodstream infections due to yeasts varied by region and by patient ethnicity
- rates of bloodstream infections due to yeasts are higher in more deprived populations of the country than the least deprived by Index of Multiple Deprivation (4.9 and 3.4 per 100,000 population, respectively)
- rates of fungaemia due to *C. albicans* and *N. glabratus* were highest in people aged 75 years and over, while rates due to *C. parapsilosis* were highest in under one year of age

Trends in England

Overall, there was an 6% increase in the number of laboratory reports of fungaemia due to yeasts between 2024 and 2025 (2,281 to 2,408 reports; Table 1). In 2025, 63% (1,519 out of 2,408) of yeast isolates from blood were *Candida spp*. As mentioned in the introduction to this report, the proportion of bloodstream infections due to *Candida* has changed in comparison to previous reports due to the reclassification of some yeast species from this genus. The second most common genus of yeast isolated from blood was *Nakaseomyces spp.* (29%; 695 out of 2,408 isolates). Sixteen other genera of yeast were reported to have caused bloodstream infections, however each had fewer than 40 (<1.7%) reports in 2025. In 2025, 5% (112 out of 2,408) of yeast isolates from blood were not reported to species level, which is lower compared to 2024 (6%; 143 out of 2,281; Table 1). Not identifying yeast to species level could mean that there is insufficient evidence to accurately assign isolates to a specific genus (for example, *Candida* spp.).

Regarding species of yeast, *C. albicans* was the most commonly reported cause of fungaemia in 2025 (40%; 957/2,408), followed by *N. glabratus* (29%; 692/2,408) and *C. parapsilosis* (12%; 302/2,408) respectively. These species and their proportions mirror those found across Europe (3), however the importance of close monitoring remains. The United States has recently reported a shift in the most dominant species to *N. glabratus* which is intrinsically resistant to fluconazole (4).

Figure 1 shows the rate per 100,000 population trends of total fungaemia due to yeasts and fungaemia due to *Candida* and *Nakaseomyces* genera between 2016 and 2025. In 2025, the rate of bloodstream infections due to yeast across England was 4.1 per 100,000 population, which is the highest rate observed in the last 10 years and represents an increase of 27% since 2016 and an increase of 6% since 2024 (Figure 1; a full list of documented species is included within the data tables).

The observed increase in bloodstream infections due to yeast from 2016 to 2017 may be due to increased reporting following the launch of the Second Generation Surveillance System (SGSS), and associated training for local laboratories, which raised awareness following the publication of the British Society for Medical Mycology (BSMM) guidance in 2015 and the widely reported *Candida auris* (now named *Candidozyma auris*) outbreaks within hospitals in 2015 and 2016 (5).

In contrast to many pathogens, the rate of bloodstream infections due to yeasts increased over the COVID-19 pandemic period (2020 to 2021). The increase in incidence may be due to increased number of patients being admitted to intensive care units (ICUs) in 2020, as a result of the pandemic (6). Patients on ICUs are at higher risk for bloodstream infections due to yeast as the setting allows the opportunistic pathogen to become invasive, with many risk factors for fungaemia overlapping with characteristics of patients on ICUs (7). Surveillance of bloodstream infections in critical care England demonstrated an increase in Candida species over this period (8).

Table 1. Reports of fungaemia by yeast species in England, 2021 to 2025

Species	2021		2022		2023		2024		2025	
	Number	%	Number	%	Number	%	Number	%	Number	%
Candida	**1,386**	100	**1,405**	100	**1,434**	100	**1,498**	100	**1,519**	100
C. albicans	875	63	855	61	864	60	926	62	957	63
C. dubliniensis	51	4	62	4	60	4	57	4	39	3
C. metapsilosis	4	<1	6	<1	5	<1	7	<1	7	<1
C. orthopsilosis	2	<1	3	<1	2	<1	3	<1	2	<1
C. parapsilosis	272	20	260	19	277	19	282	19	302	20
C. tropicalis	45	3	79	6	75	5	81	5	105	7
Candida spp., sp. not recorded	122	9	125	9	131	9	120	8	93	6
Candida spp., other named	15	1	15	1	20	1	22	1	14	<1
Candidozyma	**4**	100	**1**	100	**5**	100	**2**	100	**14**	100
C. auris [note 1]	4	100	1	100	5	100	2	100	14	100
Clavispora	**38**	100	**33**	100	**27**	100	**34**	100	**38**	100
C. lusitaniaei [note 1]	38	100	33	100	27	100	34	100	38	100
Cryptococcus	**34**	100	**25**	100	**28**	100	**34**	100	**37**	100
C. neoformans	19	56	20	80	19	68	22	65	23	62
Cryptococcus spp., sp. not recorded	15	44	5	20	9	32	12	35	14	38
Cyberlindnera	**2**	100	**0**		**2**	100	**1**	100	**1**	100
C. fabianii	1	50	0		1	50	0	0	0	0
C. jadinii	1	50	0		1	50	0	0	1	100
Cyberlindnera spp., sp. not recorded	0	0	0		0	0	1	100	0	0

Species	2021		2022		2023		2024		2025	
	Number	%	Number	%	Number	%	Number	%	Number	%
Debaryomyces	**0**		**0**		**0**		**0**		**1**	100
D. hansenii	0		0		0		0		1	100
Kluveromyces	**11**	100	**10**	100	**10**	100	**9**	100	**6**	100
K. marxianus [note 1]	11	100	10	100	10	100	9	100	6	100
Magnusiomyces	**1**	100	**1**	100	**0**		**5**	100	**1**	100
M. capitatus	0	0	1	100	0		5	100	0	0
M. clavatus	1	100	0	0	0		0	0	1	100
Meyerozyma	**13**	100	**19**	100	**20**	100	**20**	100	**27**	100
M. caribbica	1	8	0	0	1	5	2	10	3	11
M. guilliermondii [note 1]	12	92	19	100	19	95	18	90	24	89
Nakaseomyces	**473**	100	**549**	100	**576**	100	**613**	100	**695**	100
N. glabratus [note 1]	472	>99	549	100	576	100	611	>99	692	>99
N. nivariensis [note 1]	1	<1	0	0	0	0	2	<1	3	<1
Pichia	**31**	100	**29**	100	**44**	100	**32**	100	**32**	100
P. kudriavzevii [note 1]	29	94	27	93	41	93	30	94	29	91
Pichia spp., sp. not recorded	1	3	1	3	3	7	2	6	2	6
Pichia spp., other named	1	3	1	3	0	0	0	0	1	3
Rhodotorula	**13**	100	**24**	100	**16**	100	**22**	100	**14**	100
R. dairenensis	0	0	2	8	1	6	0	0	0	0
R. glutinis	1	8	1	4	0	0	0	0	0	0
R. mucilaginosa	7	54	8	33	8	50	12	55	7	50

Species	2021		2022		2023		2024		2025	
	Number	%	Number	%	Number	%	Number	%	Number	%
Rhodotorula spp., other named	2	15	6	25	3	19	5	23	5	36
Rhodotorula spp., sp. not recorded	3	23	7	29	4	25	5	23	2	14
Saccharomyces	**7**	100	**11**	100	**10**	100	**5**	100	**15**	100
S. cerevisiae	7	100	10	91	10	100	5	100	15	100
Saccharomyces spp., sp. not recorded	0	0	1	9	0	0	0	0	0	0
Starmerella	**0**		**0**		**1**	100	**0**		**1**	100
S. magnoliae [note 1]	0		0		1	100	0		1	100
Tardiomyces	**0**		**0**		**0**		**1**	100	**0**	
T. blankii [note 1]	0		0		0		1	100	0	
Trichosporon	**0**		**1**	100	**5**	100	**3**	100	**4**	100
T. asahii	0		0	0	1	20	0	0	2	50
T. beigelii	0		0	0	1	20	0	0	0	0
T. inkin	0		0	0	0	0	0	0	1	25
Trichosporon spp., sp. not recorded	0		1	100	2	40	3	100	1	25
Trichosporon spp., other named	0		0	0	1	20	0	0	0	0
Wickerhamomyces	**0**		**3**	100	**3**	100	**1**	100	**3**	100
W. anomalus [note 2]	0		3	100	3	100	1	100	3	100
Yarrowia	**1**	100	**2**	100	**0**		**1**	100	**0**	
Y. lypolytica	1	100	2	100	0		1	100	0	

Note 1: Previously categorised as *Candida* species. For a full list of yeast species and taxonomic changes, see the accompanying data tables.
Note 2: Previously categorised as *Pichia anomola.*

Figure 1. Trends in fungaemia reports per 100,000 population in England, 2016 to 2025

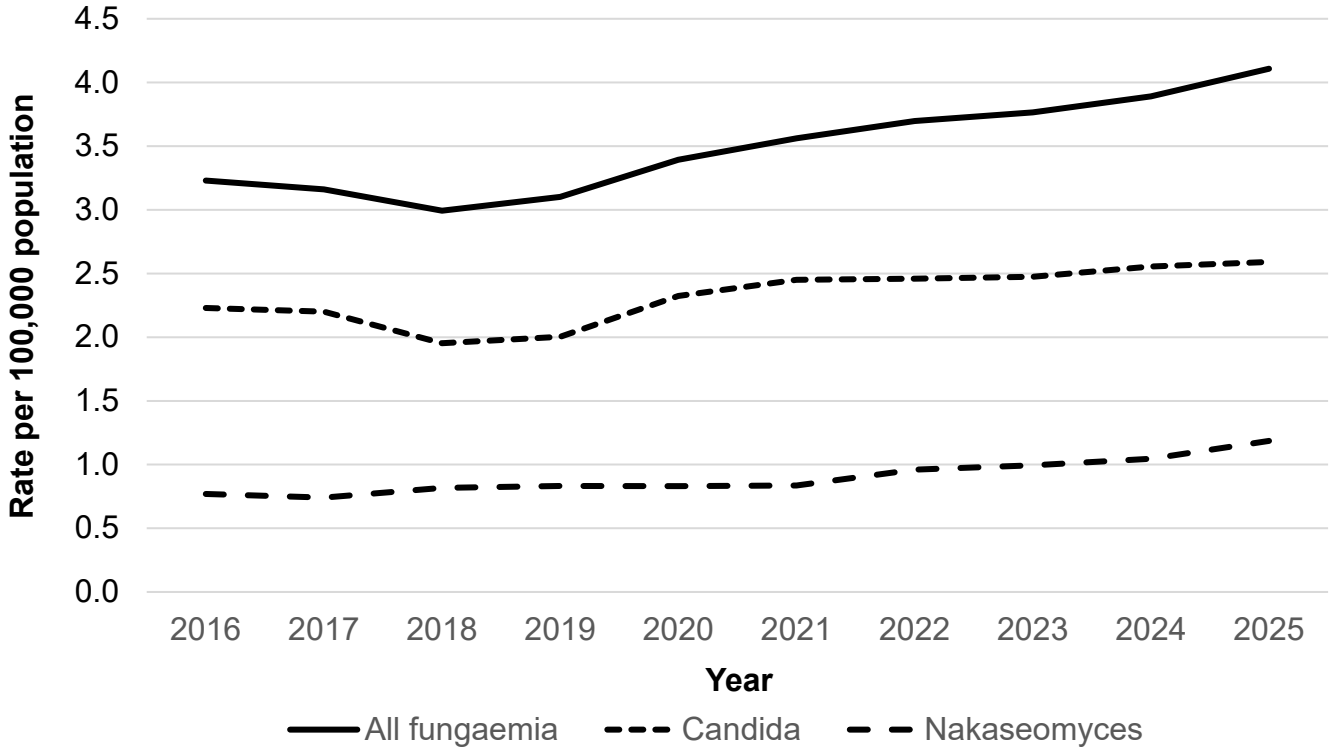


Table 2 shows the regional rates of fungaemia due to yeast by group in 2025.

Table 2. Rate per 100,000 population of fungaemia reports by region in England, 2025

Region		Rate per 100,000 population		
		All fungaemia	***Candida***	***Nakaseomyces***
North of England	North East	4.2	3.0	0.8
	North West	4.8	3.2	1.2
	Yorkshire and Humber	4.1	2.5	1.3
Midlands and East of England	East Midlands	4.7	3.3	1.2
	East of England	4.3	2.6	1.4
	West Midlands	4.1	2.8	1.1
London	London	3.9	2.2	1.3
South of England	South East	3.4	1.9	1.2
	South West	3.9	2.7	1.0
England		**4.1**	**2.6**	**1.2**

The rate of fungaemia caused by yeasts reported across England in 2025 ranged from 4.8 in the North West to 3.4 per 100,000 in the South East (Table 2). Variation in fungaemia due to yeast in 2025 is reported by ethnic group (Table 3). The highest number and rate per 100,000 population of fungaemia was recorded in people in a white ethnic group. In 2025, the incidence

of fungaemia increased as deprivation increased from 3.4 per 100,000 in the least deprived 20% to 4.9 per 100,000 in the most deprived 20% of the population in England (Table 4).

Table 3 shows the number of reports and rates of fungaemia by ethnic group in 2025.

Table 3. Fungaemia reports by ethnic group in England in 2025 [note]

Ethnic group	Bloodstream infections per 100,000 ethnic population					
	All fungaemia		*Candida*		*Nakaseomyces*	
	Number	Rate	Number	Rate	Number	Rate
White	1,987	4.3	1,280	2.8	591	1.3
Asian or Asian British	166	3.1	103	1.9	40	0.7
Black, African, Caribbean or black British	84	3.5	45	1.9	18	0.8
Mixed or multiple ethnic groups	12	0.7	7	0.4	3	0.2
Any other ethnic group	12	1.0	6	0.5	3	0.2
Not known or Not stated	47		23		20	

Note: 100 out of 2,408 (4.2%) bloodstream infection episodes could not be linked to ethnic group information.

Table 4 shows rates of fungaemia by Indices of Multiple Deprivation (IMD) quintile in 2025.

Table 4. Fungaemia rate per 100,000 population by IMD quintile, England, 2025

IMD quintile	Rate per 100,000 population		
	All fungaemia	*Candida*	*Nakaseomyces*
1 (most deprived)	4.9	3.1	1.4
2	4.6	2.8	1.4
3	4.2	2.7	1.2
4	4.0	2.5	1.2
5 (least deprived)	3.4	2.2	0.9

Note: Data for IMD is based on patient residence information. Records are excluded when this information is not available. In 2025, the number excluded was 79 out of 2,408 (3.3%).

Candida

Candida spp. are the most commonly reported cause of fungaemia in the period 2021 to 2025. Of the *Candida* causing fungaemia in England in 2025, *C. albicans* accounted for 63% (957 out of 1,519) of reports (Table 1). In comparison with other causes of bloodstream infections, *C. albicans* was ranked 23rd among monomicrobial and 42nd among polymicrobial bloodstream infections in 2024 (9), down from 22nd and 36th respectively in 2023. The second most common *Candida* species isolated from blood was *C. parapsilosis* which accounted for 20% (302 out of 1,519) of reports (Table 1).

C. auris (recently re-classified as *Candidozyma auris*) is a fungal pathogen of clinical concern. Reports of fungaemia due to *C. auris* in England remain low, though reports have increased following a decline during COVID-19 restrictions (4 reports in 2021 to 14 reports in 2025; Table 1). More detailed epidemiology on *C. auris* can be found in UKHSA *C. auris* biannual epidemiological commentaries and updated guidance for healthcare professionals can be found through the Government *C. auris* collection page (10, 11).

The rate of fungaemia due to *Candida* across England in 2025 ranged from 3.3 in the East Midlands to 1.9 per 100,000 in the South East (Table 2). There was variation in *Candida* bloodstream infections by ethnic group in 2025, similar to that found overall for fungaemia (Table 3). The highest number of reports and rate per 100,000 population of fungaemia due to *Candida* was recorded in people in a white ethnic group.

In 2025, the incidence of fungaemia due to *Candida* increased as deprivation increased from 2.2 per 100,000 in the least deprived 20% to 3.1 per 100,000 in the most deprived 20% of the population in England, this trend mirrors that for all fungaemia (Table 4). There was a 41% increase in the rate of fungaemia due to *Candida* between the least and most deprived populations.

Figure 2 shows that the highest rate of *C. albicans* bloodstream infections was in those aged 75 and over at 6.2 per 100,000 (9.5 in males and 3.7 per 100,000 in females), followed people aged 64 to 74 years at 3.6 per 100,000 population (4.9 in males and 2.5 per 100,000 in females).

Figure 3 shows the highest rate of *C. parapsilosis* bloodstream infections was in children aged less than one year at 1.7 per 100,000 (2.4 in males and 1.1 per 100,000 in females), followed by those aged 75 and over at 1.4 per 100,000 population (2.1 in males and 0.8 per 100,000 in females).

Figure 2. *Candida albicans* bloodstream infections age and sex rates per 100,000 population in England, 2025

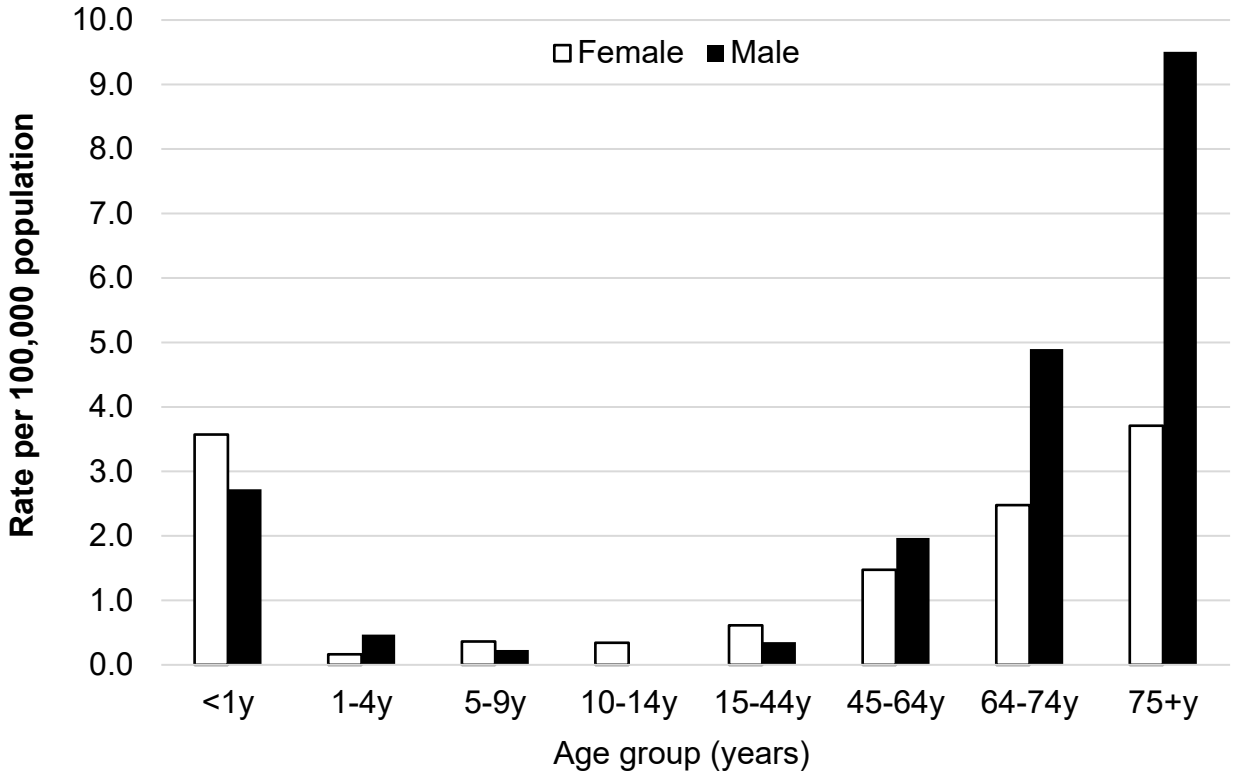
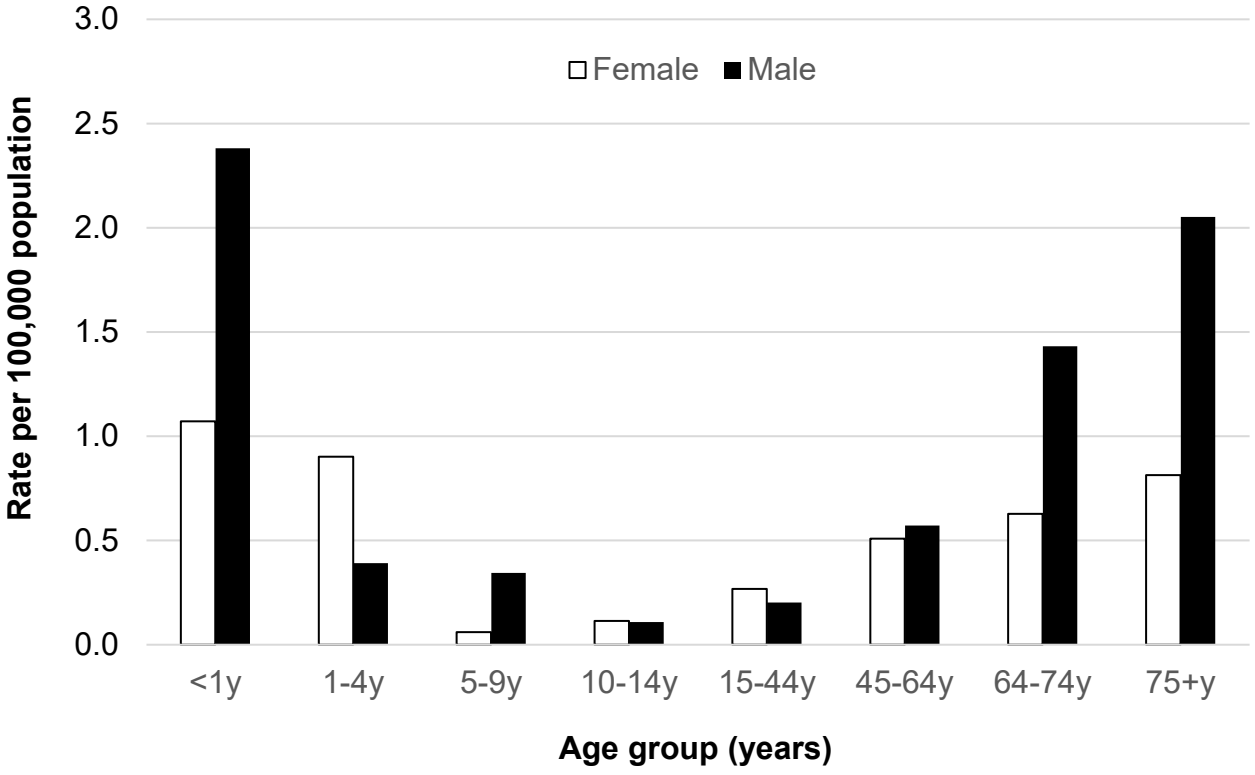


Figure 3. *Candida parapsilosis* bloodstream infections age and sex rates per 100,000 population in England, 2025



In England, the percentage of *C. albicans* fungaemia reports that were accompanied by antifungal susceptibility data in 2025 was 58% (54% in 2024), 44% (47%), 72% (68%), 9% (11%) and 53% (53%) for amphotericin B, caspofungin, fluconazole, flucytosine and voriconazole respectively. In 2024, resistance to each of the listed antifungals was 2% or less.

The percentage of *C. parapsilosis* fungaemia reports that were accompanied by antifungal susceptibility data in 2025 was 57% (60% in 2024), 43% (49%), 67% (66%), 9% (11%) and 61% (62%) for amphotericin B, caspofungin, fluconazole, flucytosine and voriconazole respectively. In 2023, resistance to each of the listed antifungals was 2% or less with the exception of fluconazole and flucytosine for which resistance was 3% and 4% respectively. This should be monitored as there are increasing reports of fluconazole resistant *C. parapsilosis* from countries such as Spain, Italy, Turkey, South America and South Africa (12).

Resistance data displayed in this report is as provided by laboratories in England to SGSS, the methodology by which susceptibility testing was performed is not captured. The European Committee on Antimicrobial Susceptibility Testing (EUCAST) and Clinical and Laboratory Standards Institute (CLSI) resistance breakpoints differ and the correct cut-off should be selected by laboratories according to the susceptibility method used.

British and European guidelines on fungal diagnostics and management (13, 14) emphasise the role of rapid diagnosis and identification of clinically significant fungal isolates to species level, as well as the need for susceptibility testing. Further increases in the levels of antifungal susceptibility testing are needed to improve our understanding of resistance trends, inform antifungal stewardship activities and improve patient outcomes for yeast species bloodstream infections. However, there is an increasing literature that provides the usual antifungal susceptibility patterns for many species of *Candida* and allied genera that may help to inform therapeutic decisions (15).

Table 5 shows the number of reports for prevalent *Candida* species causing fungaemia that were tested and the proportion that were resistant to key antifungals (amphotericin B, anidulafungin, caspofungin, fluconazole, flucytosine, voriconazole) in England between 2021 and 2025.

Table 5. Antimicrobial susceptibility for *Candida* causing fungaemia in England, 2021 to 2025

In this table, R = resistant.

Antimicrobial agent		2021		2022		2023		2024		2025	
		Number tested	R (%)	Number tested	R (%)	Number tested	R (%)	Number tested	R (%)	Number tested	R (%)
Candida albicans	amphotericin B	503	<1	492	<1	449	<1	508	<1	553	0
	caspofungin	419	<1	405	0	386	0	442	<1	422	0
	fluconazole	541	<1	529	1	544	1	634	2	686	1
	flucytosine	276	2	250	2	142	1	106	3	83	0
	voriconazole	502	1	475	1	430	1	495	1	508	1
Candida parapsilosis	amphotericin B	169	0	178	<1	159	<1	169	<1	171	2
	caspofungin	130	0	125	<1	119	<1	139	<1	131	<1
	fluconazole	174	5	179	2	163	4	184	2	203	3
	flucytosine	89	2	81	0	61	2	32	3	26	4
	voriconazole	166	2	171	<1	163	2	173	<1	183	<1

Nakaseomyces

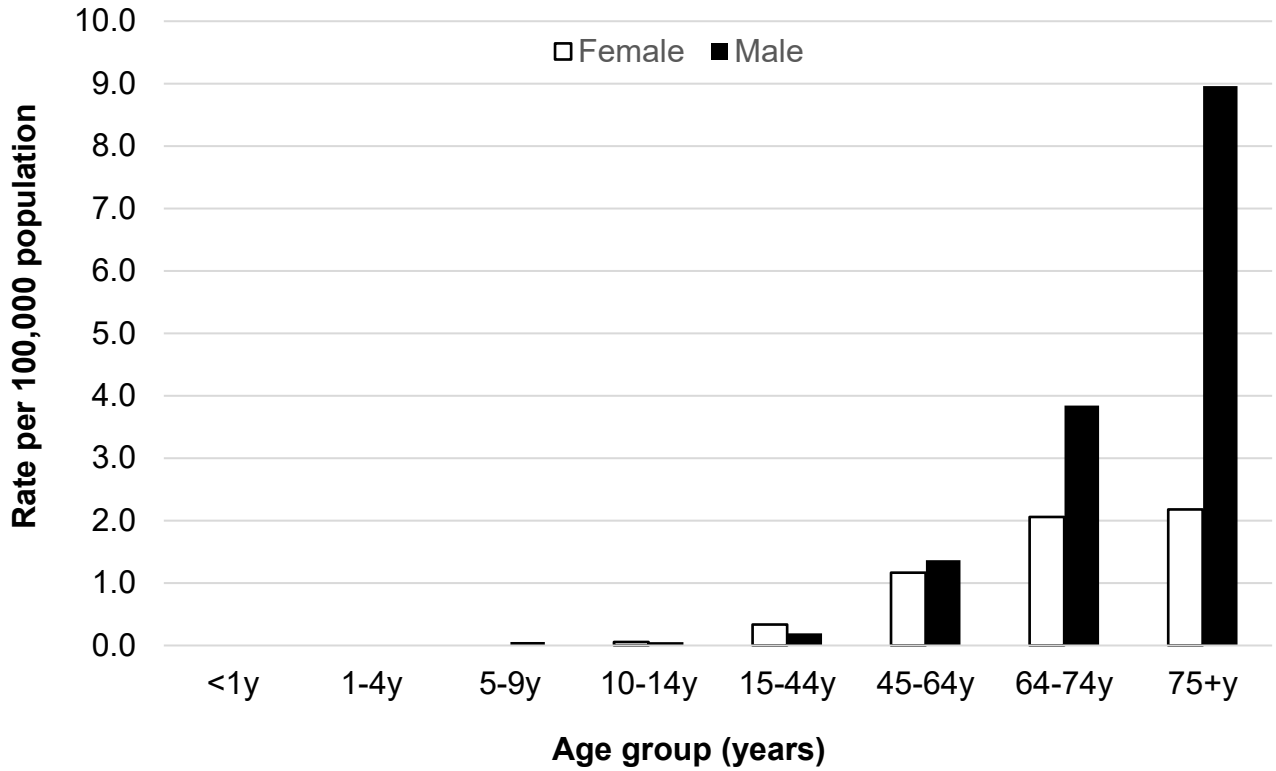
Nakaseomyces spp. are the second most commonly reported cause of fungaemia in the period 2021 to 2025. Of the *Nakaseomyces spp.* causing fungaemia in England in 2025, *N. glabratus* accounted for 692 reports (Table 1). In comparison with other causes of bloodstream infections, *N. glabratus* was ranked 31st among monomicrobial and 47th among polymicrobial bloodstream infections in 2024 (9), up from 33rd and down from 43rd respectively in 2023.

The rate of *Nakaseomyces* reports across England in 2025 ranged from 1.4 in the East of England to 0.8 per 100,000 in the North East (Table 2). Similarly to *Candida*, there was variation in fungaemia due to *Nakaseomyces spp*. by ethnic group in 2025 (Table 3). The highest number of reports and rate per 100,000 population of fungaemia due to *Nakaseomyces* was recorded in people in a white ethnic group.

In 2025, the incidence of fungaemia due to *Nakaseomyces* was highest in the most deprived 40% of the population (1.4 per 100,000 population in both IMD quintiles 1 and 2; Table 4). The incidence decreased to 0.9 in the 20% least deprived of the population (IMD quintile 5). There was a 56% increase in the rate of fungaemia between the least and most deprived populations.

Figure 4 shows the highest rate of *N. glabratus* fungaemia was in people aged 75 years and over at 5.1 per 100,000 (9.0 in males and 2.2 per 100,000 in females), followed by those aged 64 to 74 and 45 to 64 at 2.9 per 100,000 and 1.3 per 100,000, respectively.

Figure 4. *Nakaseomyces glabratus* fungaemia age and sex rates per 100,000 population in England, 2025



In England, the percentage of *N. glabratus* fungaemia reports that were accompanied by antifungal susceptibility data in 2025 was 61% (58% in 2024), 38% (36%), 60% (54%), 9% (10%) and 42% (42%) for amphotericin B, caspofungin, fluconazole, flucytosine and voriconazole, respectively. In 2025, resistance to fluconazole and voriconazole was 13% and 20% respectively. Resistance to amphotericin B, caspofungin and flucytosine was 0%, 1% and 0% respectively.

Interpreting resistance trends in *N. glabratus* has been difficult due to differences in the standard breakpoints used by laboratories to define antifungal susceptibility. EUCAST and CLSI breakpoints for fluconazole previously differed in their interpretation. However, introduction of the EUCAST 'Susceptible Increased exposure' category now aligns more closely with the CLSI 'susceptible-dose-dependent' category (indicating that the isolate is likely to respond to high doses of fluconazole) (14, 15). This could account for changes in the percentage of isolates being reported as resistant to fluconazole (Table 6). The EUCAST methodology does not currently have a *N. glabratus* breakpoint for voriconazole, due to insufficient evidence that this antifungal should be used in the treatment of *N. glabratus* (18). Furthermore, for caspofungin susceptibility testing, only the Etest method is reliable, which requires expertise to read. Many laboratories are changing to anidulafungin as a sentinel echinocandin instead, as resistance mutations in most yeast isolates confer resistance to all drugs in the echinocandin class (19).

Table 6 shows the number of *Nakaseomyces glabratus* causing fungaemia that were tested and the proportion that were resistant to key antifungals (amphotericin B, anidulafungin, caspofungin, fluconazole, flucytosine, voriconazole) in England between 2021 and 2025.

Table 6. Antimicrobial susceptibility for *Nakaseomyces* causing fungaemia in England, 2021 to 2025

In this table, R = resistant.

Antimicrobial agent		2021		2022		2023		2024		2025	
		Number tested	R (%)	Number tested	R (%)	Number tested	R (%)	Number tested	R (%)	Number tested	R (%)
Nakaseomyces glabratus	amphotericin B	285	0	350	2	331	2	354	<1	421	0
	caspofungin	171	12	238	4	245	8	219	2	265	1
	fluconazole	205	10	281	17	291	17	332	14	417	13
	flucytosine	163	<1	161	<1	97	5	63	2	65	0
	voriconazole	228	8	251	14	217	18	257	9	288	20

Reference microbiology service

In 2025, the percentage of reports of fungaemia due to yeast in which the organism was not fully identified was 5%. Precise species identification of isolates would improve the monitoring of trends in infections due to yeast genera. The percentage of fungaemia reports that were accompanied by antifungal susceptibility data in 2025 is far lower than for bacteraemia reports (9), highlighting the need for development and implementation of testing within the NHS.

The UKHSA Mycology Reference Laboratory (MRL, Bristol) offers referred (charged for) taxonomic identification and susceptibility testing services for fungi from systemic and other significant infections (20).

Acknowledgements

These reports would not be possible without the weekly contributions from microbiology colleagues in laboratories across England, without whom there would be no surveillance data. The support from colleagues within the UKHSA Mycology Reference Laboratory (MRL, Bristol) is greatly valued in the preparation of the report.

Feedback and specific queries about this report are welcome and can be sent to: hcai.amrdepartment@ukhsa.gov.uk

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UKHSA is an executive agency, sponsored by the Department of Health and Social Care.

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Published: June 2026
Publishing reference: GOV-21261