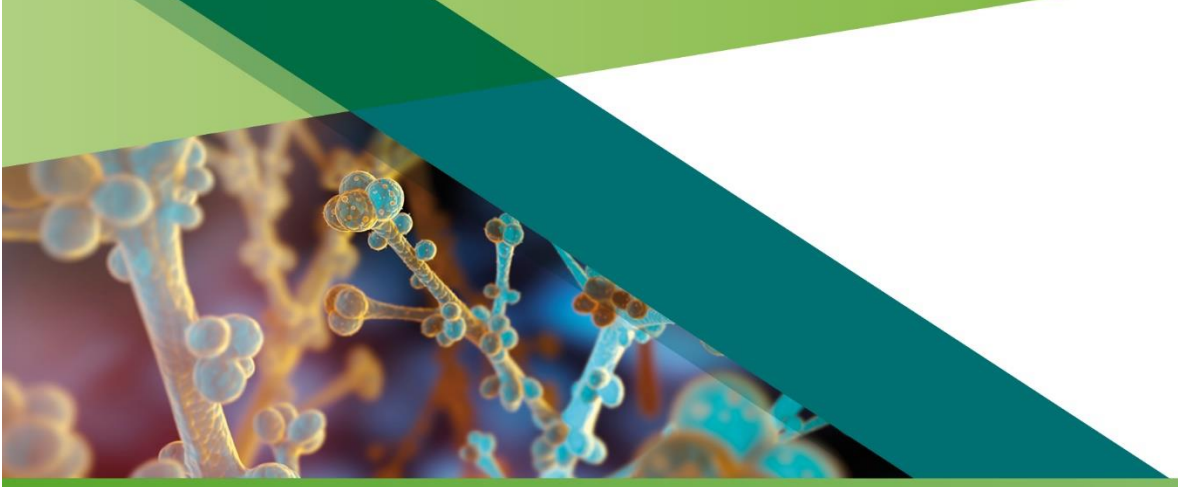

SURVEILLANCE AND MONITORING

Survey on the epidemiological situation, laboratory capacity and preparedness for *Candidozyma (Candida) auris*, 2024

11 September 2025

Key findings

Candidozyma auris (formerly *Candida auris*) poses a risk for patients in healthcare facilities across Europe due to its ability to cause severe infections in critically ill patients, its potential resistance to several antifungal agents, which makes infections difficult to treat, and its propensity for transmission and outbreaks in healthcare settings. The *C. auris* survey 2024 shows that spread of *C. auris* continues to occur at a rapid pace. In total, 4 012 cases of *C. auris* colonisation or infection were reported by European Union (EU)/European Economic Area (EEA) countries between 2013 and 2023. The five countries with highest *C. auris* case numbers were Spain, Greece, Italy, Romania and Germany. Since 2020, case numbers have been increasing rapidly until 2023 when 1 346 yearly cases were reported by 18 EU/EEA countries. Despite this increase, the recorded case numbers only reflect the tip of the iceberg as systematic surveillance is not in place in many countries. While the previous three ECDC *C. auris* surveys were restricted to EU/EEA countries, the EU enlargement countries of the Western Balkans and Türkiye were also invited to participate in *C. auris* survey 2024. Türkiye, Kosovo[1], and Bosnia and Herzegovina reported a total of 121 *C. auris* cases.

Recent distinct *C. auris* outbreaks were reported by three countries (Cyprus, France and Germany) while four countries (Greece, Italy, Romania and Spain) reported that it was no longer possible to distinguish specific outbreaks in a situation of regional endemicity. The period between a documented first case in the country and regional endemicity according to the ECDC staging system has been between five and seven years for Greece, Italy and Spain, showing how rapidly *C. auris* can spread through hospital networks. This rapid dissemination of *C. auris* is of serious concern and points to a high risk for continued *C. auris* spread throughout European healthcare systems. With increasing *C. auris* cases and its widespread geographic distribution, sustained control will become more difficult. The *C. auris* survey 2024 also showed that there were still gaps in national preparedness, especially regarding national surveillance systems and guidance for infection prevention and control (IPC) measures. National efforts for early detection, surveillance and rapid implementation of IPC measures to contain or delay further spread of *C. auris* can still mitigate its impact on hospitalised patients in Europe.

[1] *This designation is without prejudice to positions on status and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.*

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Background

Candidozyma auris is listed in the 'critical priority group' of the World Health Organization (WHO) list of fungal priority pathogens that was developed to guide research, development and public health action [1]. *C. auris* is an emerging pathogenic yeast that was first described in 2009 in a Japanese patient [2], and has subsequently been associated with invasive infections and outbreaks in healthcare settings worldwide [3]. The majority of *C. auris* isolates are resistant to fluconazole [4]. Echinocandins are the treatment of choice for patients with invasive *C. auris* infection, but the risk of treatment failure and relapse of infection after treatment is higher for *C. auris* than for other *Candida* species [5]. In addition, multidrug-resistant isolates with varying levels of resistance to amphotericin B and echinocandins as well as pan-drug resistant *C. auris* have been reported [6-8]. *C. auris* candidaemia is associated with a high mortality ranging from 29% to 62% [9].

Regular surveillance for fungal pathogens including *C. auris* is not established at the European level. However, ECDC has collected data on the epidemiological situation, laboratory capacity and preparedness for *C. auris* in three surveys since 2018 [10-12]. Here we report the data from the fourth *C. auris* survey conducted in 2024 including reported cases until the end of 2023.

Data sources and methods

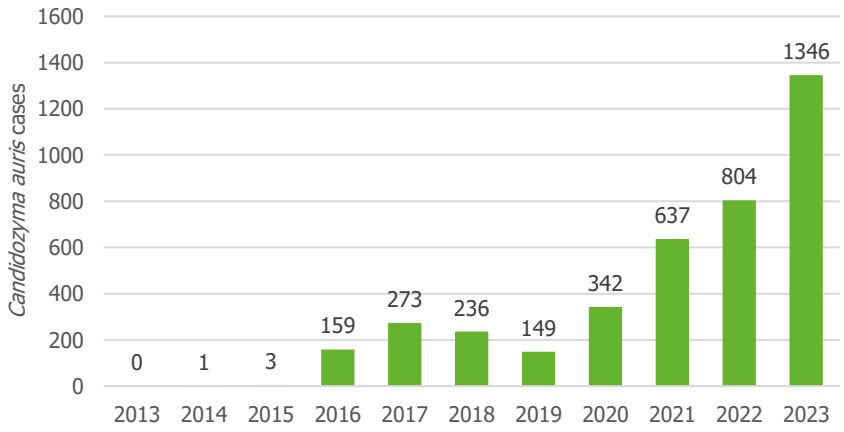
The National Focal Points for Healthcare-associated Infections and their alternates were invited to complete the fourth *C. auris* survey on 7 June 2024. This survey included 10 questions on the aggregated number of cases of *C. auris* infection or carriage (in the following called *C. auris* cases) and outbreaks reported per year in the period from 2013 to 2023, the epidemiological stage (as explained below), and the national capacity for laboratory identification and preparedness for *C. auris*. For the first time, EU enlargement countries (Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, Serbia, Türkiye) were also invited to participate.

Results

Reported cases of *Candidozyma auris*

In total, 4 012 cases of *C. auris* colonisation or infections were reported by EU/EEA countries between 2013 and 2023 (Table 1). This is a substantial increase of 2 200 cases compared to the 1 812 *C. auris* cases that had been reported previously in the *C. auris* survey 2022 [12]. The newly reported cases are mainly from 2022 and 2023 but also include retrospective corrections as well as cases for which information on the reporting year was not available. The five countries with the highest numbers of reported cases from 2013 to 2023 were Spain (n=1 807), followed by Greece (n=852), Italy (n=712), Romania (n=404) and Germany (n=120). The first case reported between 2013–2023 in the EU/EEA was in 2014 in France, followed by an initial peak of cases in 2017, mainly related to an outbreak in Spain. Since 2020 there has been a steady increase of reported cases until 2023 when 1 346 cases were reported by 18 countries (Figure 1). Bulgaria did not detect any *C. auris* cases during 2013-2023 which is covered by the *C. auris* 2024 survey, but registered four cases in 2025.

Figure 1. Reported cases of *Candidozyma auris*, EU/EEA, 2013-2023*



**Italy reported an additional 62 cases which could not be allocated to a specific year.*

Six of the seven invited EU enlargement countries also replied to the survey and reported a total of 121 *C. auris* cases between 2013–2023. Most cases were reported by Türkiye (n=114), followed by Kosovo (n=6) and Bosnia and Herzegovina (n=1). Montenegro and North Macedonia also replied to the survey but had not detected any cases. Serbia reported eight cases for 2024 outside of the period formally covered by the survey. Albania did not respond to the survey.

Table 1. Reported cases of *Candidozyma auris* infection and carriage, by European country, 2013-2023

Country	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2013 - 2023
Austria	0	0	0	0	0	1	0	2	1	1	2	7
Belgium	0	0	0	1	0	0	3	0	1	3	6	14
Bulgaria	0	0	0	0	0	0	0	0	0	0	0	0
Croatia	0	0	0	0	0	0	0	0	0	0	0	0
Cyprus	0	0	0	0	0	0	0	0	0	0	13	13
Czechia	0	0	0	0	0	0	0	0	1	1	1	3
Denmark	0	0	0	0	0	0	0	0	2	2	1	5
Estonia	0	0	0	0	0	0	0	0	0	0	1	1
Finland	0	0	0	0	0	0	0	0	1	2	2	5
France[a]	0	1	1	1	1	0	3	3	5	7	10	32
Germany	0	0	2	1	6	2	3	5	12	12	77	120
Greece	0	0	0	0	0	0	3	13	58	327	451	852
Hungary	0	0	0	0	0	0	0	0	0	0	0	0
Iceland	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0
Italy	0	0	0	0	0	0	0	57	221	42	330	712[b]
Latvia	0	0	0	0	0	0	0	0	0	0	0	0
Liechtenstein	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lithuania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0
Malta	0	0	0	0	0	0	0	0	0	0	0	0
The Netherlands	0	0	0	0	0	2	1	1	1	2	6	13
Norway	0	0	0	1	0	1	0	0	2	3	6	13
Poland	NA	NA	NA	NA	NA	NA	1	0	0	0	0	1
Portugal	0	0	0	0	0	0	0	0	0	0	4	4
Romania	0	0	0	0	0	0	0	0	0	147	257	404
Slovakia	0	0	0	0	0	0	0	0	0	0	0	0
Slovenia	0	0	0	0	0	0	0	0	0	0	1	1
Spain	0	0	0	155	266	230	135	260	331	253	177	1 807
Sweden	NA	NA	NA	NA	NA	NA	0	1	1	2	1	5
EU/EEA	**0**	**1**	**3**	**159**	**273**	**236**	**149**	**342**	**637**	**804**	**1 346**	**4 012**
Bosnia and Herzegovina	0	0	0	0	0	0	0	0	0	0	1	1
Kosovo	0	0	0	0	0	0	0	0	0	0	6	6
Montenegro	0	0	0	0	0	0	0	0	0	0	0	0
North Macedonia	0	0	0	0	0	0	0	0	0	0	0	0
Serbia	0	0	0	0	0	0	0	0	0	0	0	0
Türkiye	0	0	0	0	0	0	0	14	45	25	30	114
Survey total	**0**	**1**	**3**	**159**	**273**	**236**	**149**	**356**	**682**	**829**	**1 383**	**4 133**

NA, information not available at national level. [a]France reported one case retrospectively identified in 2007 which is not included in this table [13]. [b]Italy reported 62 additional cases which could not be allocated to a specific year.

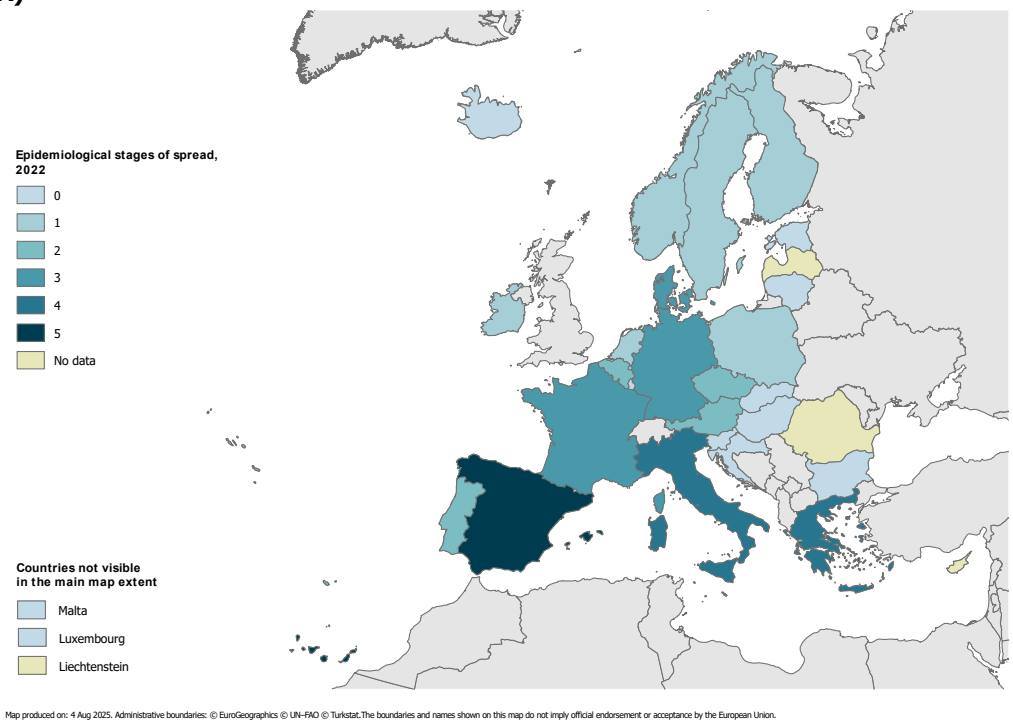
Epidemiological stage of spread

Recent outbreaks of *C. auris* were reported by seven countries. Three countries (Cyprus, France and Germany) had detected distinct outbreaks in 2023, while four countries (Greece, Italy, Romania and Spain) reported that it was no longer possible to distinguish specific outbreaks in a situation of regional or national endemicity. Denmark had reported one outbreak of two epidemiologically linked cases in 2021 but no other more recent outbreaks. The overall epidemiological stage of dissemination of *C. auris* was determined based on the respondents' assessment in analogy to an epidemiological staging methodology that was previously developed for multidrug-resistant bacteria such as carbapenemase-producing Enterobacterales and carbapenem-resistant *Acinetobacter baumannii* and already used in the last *C. auris* survey in 2022 (Figure 2A) [14,15].

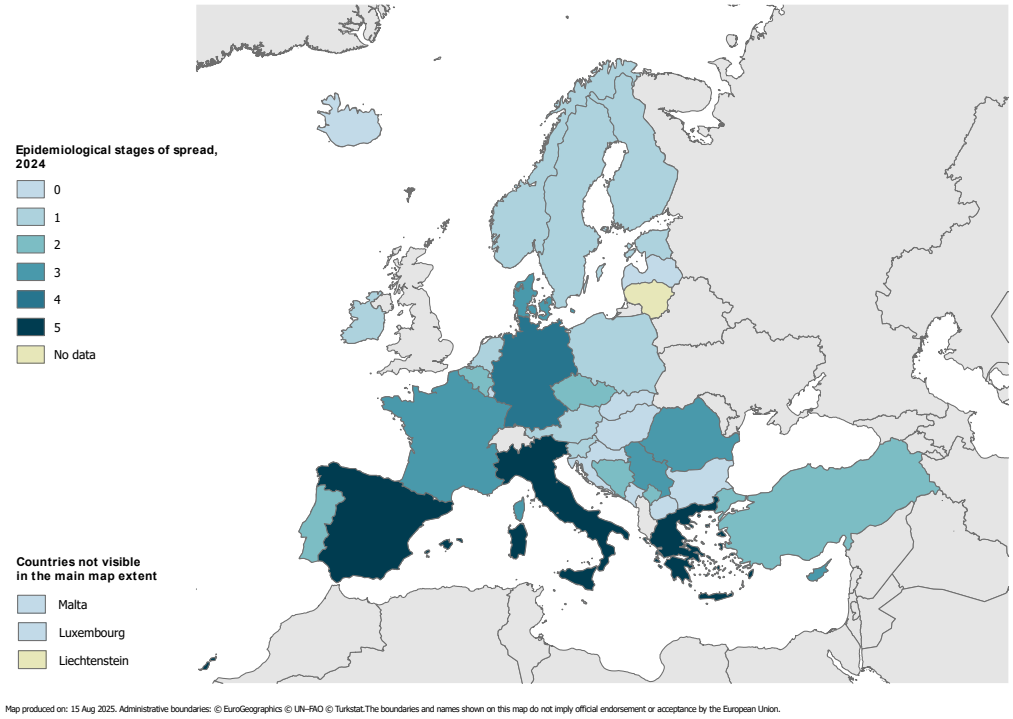
For the epidemiological staging of the *C. auris* 2024 survey, ten countries reported no cases, nine countries reported only imported cases (stage 1) and six countries reported sporadic cases that were locally acquired or of unknown origin (stage 2) (Figure 2). Five countries experienced sporadic outbreaks with limited or no inter-facility spread (stage 3), one country reported multiple outbreaks of *C. auris* with verified or plausible inter-facility spread and three countries reported regional endemicity (stage 5). Two countries lacked case data and therefore their epidemiological stage was categorised as 'no data' for this analysis.

Figure 2. Epidemiological stage of *Candidozyma auris* spread[a,b], assessment by survey respondents, A) EU/EEA countries, 2022 (n = 30 countries) adapted from [12], B) EU/EEA and EU enlargement countries[c] (n=36 countries), 2024

A)



B)



[a] *Epidemiological stages of* C. auris *spread are defined as: Stage 0: No cases of* C. auris *infection or colonisation have been detected. Stage 1: Only imported cases of* C. auris *have been detected. Stage 2: Only sporadic cases of* C. auris *that were locally acquired or of unknown origin have been detected. Stage 3: Sporadic outbreaks of* C. auris *have occurred without or with only limited inter-facility spread. Stage 4: Multiple outbreaks of* C. auris *with verified or plausible inter-facility spread have occurred. Stage 5:* C. auris *is endemic in parts of the country (regional spread).* [b] *Denmark has reported only one outbreak of two cases in 2021.* [c] *Data are included for the EU enlargement countries Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, Serbia and Türkiye.*

Preparedness

At the time of the survey in June 2024, 29 (80.6%) out of 36 participating countries had a mycology reference or expert laboratory in place and related reference testing for hospitals was provided in 23 (63.9%) countries (Table 2). Guidance for laboratory testing, clinical management and infection prevention and control (IPC) measures was available in 24 (66.7%), 11 (30.6%) and 15 (41.7%) countries, respectively. Mandatory notification for *C. auris* cases and a national surveillance system were in place in nine (25.0%) and 17 (47.2%) countries, respectively (Table 2). Of note, there were large differences regarding the setup of surveillance systems (e.g. voluntary or mandatory surveillance) and the case definition (e.g. all *C. auris* cases, only infections or only bloodstream infections) or the definition of outbreaks (Table 2).

Table 2. National laboratory capacity and public health measures taken in response to *Candidozyma auris* in 36 European countries, 2024

Country	Mandatory notification	Mycology reference laboratory / reference function	Provision of reference testing to hospital laboratories	Guidance for laboratory testing	Guidance for clinical management	Guidance for infection control	National surveillance system
Austria	N	Y	Y	Y	N	Y	N
Belgium	Y	Y	Y	Y	Y	Y	Y
Bulgaria	N	Y	N	Y	Y	N	N
Croatia	N	Y	N	N	N	N	Y[a]
Cyprus	N	N	N	N	N	N	N
Czechia	N	Y	Y	Y	N	N	Y[a]
Denmark	Y	Y	Y	Y	Y	Y	Y[b]
Estonia	N	N	N	Y	N	N	N
Finland	N	Y	Y	Y	N	Y	Y[c]
France	N	Y	Y	Y	N	N	Y[c]
Germany	Y	Y	Y	Y	Y	Y	Y[d]
Greece	N	Y	Y	Y	Y	Y	Y[c]
Hungary	N	Y	Y	N	N	N	N
Iceland	Y	Y	Y	Y	N	N	Y[c]
Ireland	Y	N	N	N	N	N	Y[c]
Italy	Y	Y	Y	Y	Y	Y	Y[b]
Latvia	N	Y	N	N	N	N	N
Liechtenstein	N	Y	Y	Y	Y	Y	N
Lithuania	N	Y	Y	Y	N	N	N
Luxembourg	Y	Y	Y	N	N	N	Y[e]
Malta	N	Y	N	N	Y	Y	NA
Netherlands	N	Y	Y	Y	N	Y	Y[f]
Norway	Y	Y	Y	Y	Y	N	Y[b]
Poland	Y	N	N	Y	N	N	Y[g]
Portugal	N	Y	Y	N	N	N	N
Romania	N	Y	N	Y	Y	Y	N
Slovakia	N	N	N	Y	N	Y	N
Slovenia	N	Y	Y	Y	Y	Y	N
Spain	N	Y	Y	Y	N	Y	N
Sweden	N	Y	Y	N	N	N	Y[c]
Bosnia and Herzegovina	N	Y	Y	N	N	N	N
Kosovo	N	Y	N	Y	N	Y	N
Montenegro	N	N	N	N	N	N	N
North Macedonia	N	N	N	N	N	N	N
Serbia	N	Y	Y	Y	N	N	Y[h]
Türkiye	N	Y	Y	Y	N	N	N
Total	**9**	**29**	**23**	**24**	**11**	**15**	**17**

[a] *Voluntary surveillance system only for* C. auris *bloodstream infections.* [b] *Mandatory surveillance system for all* C. auris *cases.* [c] *Voluntary surveillance system for all* C. auris *cases.* [d] *Mandatory reporting of* C. auris *from primarily sterile sites and voluntary surveillance via sentinel network.* [e] *Mandatory surveillance system for* C. auris *bloodstream infections and* C. auris *outbreaks.* [f] *Voluntary surveillance system only for* C. auris *infections.* [g] *Mandatory surveillance system for* C. auris *infections and* C. auris *outbreaks.* [h] *Voluntary surveillance system.*

Short descriptions of the epidemiological situation and national surveillance of *C.auris*

The data for *C. auris* cases, epidemiological stages and preparedness presented above do not sufficiently describe the variation in national surveillance and the epidemiological situation regarding *C. auris* in different EU/EEA countries. Short narrative descriptions of the five countries with the highest reported case numbers for 2013-2023 are therefore provided as examples below.

Spain

Spain was the first EU/EEA country to report a *C. auris* outbreak in 2016. The initial outbreak in Spain started in a tertiary care hospital in Valencia and spread onwards to other hospitals in the same region [16-18]. *C. auris* cases still mainly occur in the same hospitals and region but case numbers have been declining as outbreaks are now better controlled due to increased awareness, introduction of specific surveillance protocols in centres that have been most affected and earlier implementation of control measures. A national surveillance system for *C. auris* is not in place in Spain. The case numbers for this report have been generated by the national mycology reference laboratory which requested 74 hospitals in its network to report cases following the invitation to the *C. auris* survey 2024. In reply, nine out of 74 hospitals have reported cases, five of them from the initially affected region of Valencia and four from two other regions. One of these other regions had an outbreak at the time of the *C. auris* 2024 survey. Spain had been assigned the epidemiological stage of 5 'regional endemicity' since the previous survey in 2022.

Italy

The first *C. auris* case in Italy was detected in July 2019 in a hospital in Liguria followed by sporadic cases in the same hospital. In February 2020, *C. auris* was detected in an intensive care unit (ICU) for treatment of patients with severe COVID-19 in the same hospital, with a subsequent increase in case numbers throughout 2020 and 2021 and spread to the region of Emilia-Romagna and other regions [19-21]. At the time of the *C. auris* survey 2024, regional spread of *C. auris* continued and the epidemiological stage was rated as 5 'regional endemicity'. Notification of *C. auris* cases is mandatory in Italy, but cases are only notified to a limited extent. Based on national notification, the case numbers initially reported to the *C. auris* survey 2024 showed a decline. As a follow-up, a specific request was sent to the regional authorities by the Ministry of Health in December 2024 to complement the notification data, and 10 out of 21 regions responded, of which five reported *C. auris* cases. These case numbers were used for Table 1 of this report instead of the notification data.

Greece

The first case of *C. auris* was reported in Greece in 2019 [22]. Increasing numbers of cases during the COVID-19 pandemic [23] and outbreaks were reported by various hospitals [24]. At the time of an ECDC country visit to Greece in April 2024, *C. auris* had spread throughout the healthcare system with hundreds of cases detected in various hospitals. A visited rehabilitation facility had received such a high number of patients already colonised or infected with *C. auris* from hospitals that it was necessary to designate a dedicated ward area for their care [25]. The surveillance system for *C. auris* in Greece is designed as an ongoing comprehensive, voluntary, hospital-based notification system, that is laboratory enhanced, case-based, passive and nationwide. A notification form is used for data collection of confirmed *C. auris* cases (including invasive infections and colonisation). This form is completed for each case by hospital infection control committee personnel and reported to the National Public Health Organization (NPHO) through the existing disease reporting system. A dedicated database is designed to import and store the data after collection by personnel of the NPHO.

Romania

The first isolates of *C. auris* were detected in Romania in the first half of 2022, in several hospitals in Bucharest with capacity to differentiate *C. auris* among other *Candida* spp. [26]. In 2023, several *C. auris* isolates were also reported from Cluj in North-Western Romania. The case numbers submitted to the *C. auris* survey 2024 were reported by four hospital laboratories in Bucharest in 2022 and by the same laboratories and one additional hospital laboratory in Cluj in 2023. Genomic analysis of a subset of 31 isolates revealed that they all belonged to clade I, with the majority forming a large cluster of 25 isolates [27].

Germany

The first cases of *C. auris* in Germany were detected in 2015, mainly related to hospitalisations abroad [28]. The first transmissions within Germany were detected in 2021 and 2022 [29,30]. A further increase of *C. auris* cases was documented in 2023 and related to several hospital outbreaks [31]. The largest of these outbreaks included 42 cases [31]. This outbreak led to limited inter-facility spread and was still ongoing at the time of reporting. The reported case numbers are based on voluntary isolate and data submission to the National Mycology Reference Centre for Invasive Fungal Infections, analysis of a large surveillance database (ARS-Net [30]) and data from mandatory notification. Mandatory notification was implemented in Germany in July 2023; however, many cases were not recorded through the mandatory notification system as notification is restricted to invasive isolates (bloodstream and primarily sterile sites), while many of the isolates received at the National Mycology Reference Laboratory originated from colonised patients [31].

Conclusions

The *C. auris* 2024 survey shows that spread of *C. auris* continued at a rapid pace in EU/EEA countries. The first *C. auris* cases in the EU/EEA were reported in 2014, followed by initial outbreaks, and more recently, a steady increase until 2023 when 1 346 cases were reported by 18 countries. Despite the documented strong increase, the recorded case numbers only reflect the tip of the iceberg as systematic surveillance is not in place in many countries. National data collected for and presented in this report are largely based on isolates voluntarily submitted to national mycology laboratories or ad hoc data collection for the *C. auris* survey 2024 in a subset of hospitals. The five countries with the highest total *C. auris* case numbers for 2013–2023 were Spain, followed by Greece, Italy, Romania and Germany. While previous ECDC surveys on *C. auris* were restricted to EU/EEA countries, the EU enlargement countries of the Western Balkans and Türkiye were also invited to participate in this survey. *C. auris* cases for 2013-2023 were reported by Türkiye, Kosovo, and Bosnia and Herzegovina.

Distinct outbreaks were reported by three countries (Cyprus, France and Germany) while four countries (Greece, Italy, Romania and Spain) reported that it was no longer possible to distinguish specific outbreaks in a situation of regional endemicity. The period between a documented first case in the country and documented regional endemicity according to the staging system used by ECDC has been between five and seven years for Greece, Italy and Spain, showing how rapidly *C. auris* can spread through hospital networks. Similarly, rapid spread has occurred in other countries [32]. However, there are also examples from EU/EEA countries where transmission of *C. auris* was successfully controlled and further spread prevented [29,33,34].

Gaps in national preparedness for *C. auris* were still evident in the *C. auris* survey 2024. While most of the countries had a mycology reference laboratory or a laboratory with a mycology reference function in place, a national surveillance system or national IPC guidance was only available in 17 and 15 out of 36 countries, respectively. National studies in the Netherlands and France have also demonstrated limited preparedness of hospitals and limited implementation of national guidance [35,36]. The current rapid spread of *C. auris* is of serious concern and points to a high risk for continued *C. auris* spread in European healthcare systems. With increasing numbers of cases and their more widespread geographic distribution, sustained control will become more difficult. National efforts for early detection and rapid implementation of IPC measures to contain or delay further spread of *C. auris* can still mitigate the impact on hospitalised patients in Europe.

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