# *C. difficile* Annual Report 2024

# Key Points *C. difficile* surveillance (CDI) 2024

**Introduction**: 62 hospitals participating in enhanced surveillance programme in 2024 (highest to date).

**Incidence:** Crude incidence rate (CIR) for new and recurrent cases increased from 39.6 per 100,000 in 2023 to 47.2 per 100,000 in 2024, approximately a 19.2% rise. Though this is the highest crude incidence rate in 5 years, it is similar to the rate recorded for 2019 (48.4 per 100,000).

**Outbreaks:** 16 in 2024, 15 in acute hospitals, nearly doubled compared to 2019-2022 average. Variety of sequence types linked to the outbreaks, with ST55 causing 3 outbreaks.

**Case Origin:** Healthcare-associated cases account for 50%-60% of annual cases. Community cases increasing over the years. Other categories stable or slightly decreasing.

**Origin & Onset** :26% of total CDI cases were community associated in 2024, 41% community onset. Healthcare-associated (HCA): 56% of total CDI cases, 51% healthcare onset. Most HCA cases (86%) from reporting hospital.

# Key Points CDI surveillance 2024

**Severe CDI cases:** In 2024, 55 cases (2%) required ICU admission or colectomy, a decrease from 79 cases (4%) in 2023. The 2024 rate is consistent with the average from 2019–2022 (2%), indicating a return to typical severity levels following a spike in 2023.

**Age & Gender Distribution:** Rates rise sharply with age, highest in adults aged 85 years or older; comparable rates in males and females.

**Matched CDI cases (HPSC& NRL)** :884 CDI cases were matched between NRL and HPSC. ST11, ST2, and ST8 were most common. Most strains were tcdA (92%) and tcdB (97%) positive. Over half (58%) were part of clusters, mainly ST11 and ST8. Most cases were new (91%) and healthcare-associated (73%), with low overall severity (2%).

**Treatment**: Vancomycin (55%) and Fidaxomycin (30%) were the most commonly used treatments. Monotherapy used in over 95% of all reported treatment regimens. For recurrent CDI Fidaxomycin (43%) followed by Vancomycin (42%) were most frequently prescribed.

# Introduction

*Clostridioides difficile* Infection (CDI) or formerly known as *Clostridium difficile* has been a notifiable disease in Ireland from May 2008. Most cases are reported to Public Health using the Computerised Infectious Disease Reporting System (CIDR).

In addition to this, the Health Protection Surveillance Centre (HPSC) initiated a voluntary enhanced CDI programme in 2009 to collect more detailed epidemiological data on all reported cases. There are 62 Irish hospitals participating in this programme in 2024.

This report provides a comprehensive overview of the surveillance data collected from 62 hospitals across Ireland. It highlights key trends, incidence rates, outbreak details, case origins, and treatment methods for CDI.

# Method

Details on the standard national protocol can be found here:

https://www.hpsc.ie/az/microbiologyantimicrobialresistance/clostridioidesdifficile/enhancedsurveillance/

Hospitals are provided with a standardised excel reporting tool to report CDI cases. Individual hospital reports along with national reports are issued biannually.

# Notifiable CDI rates

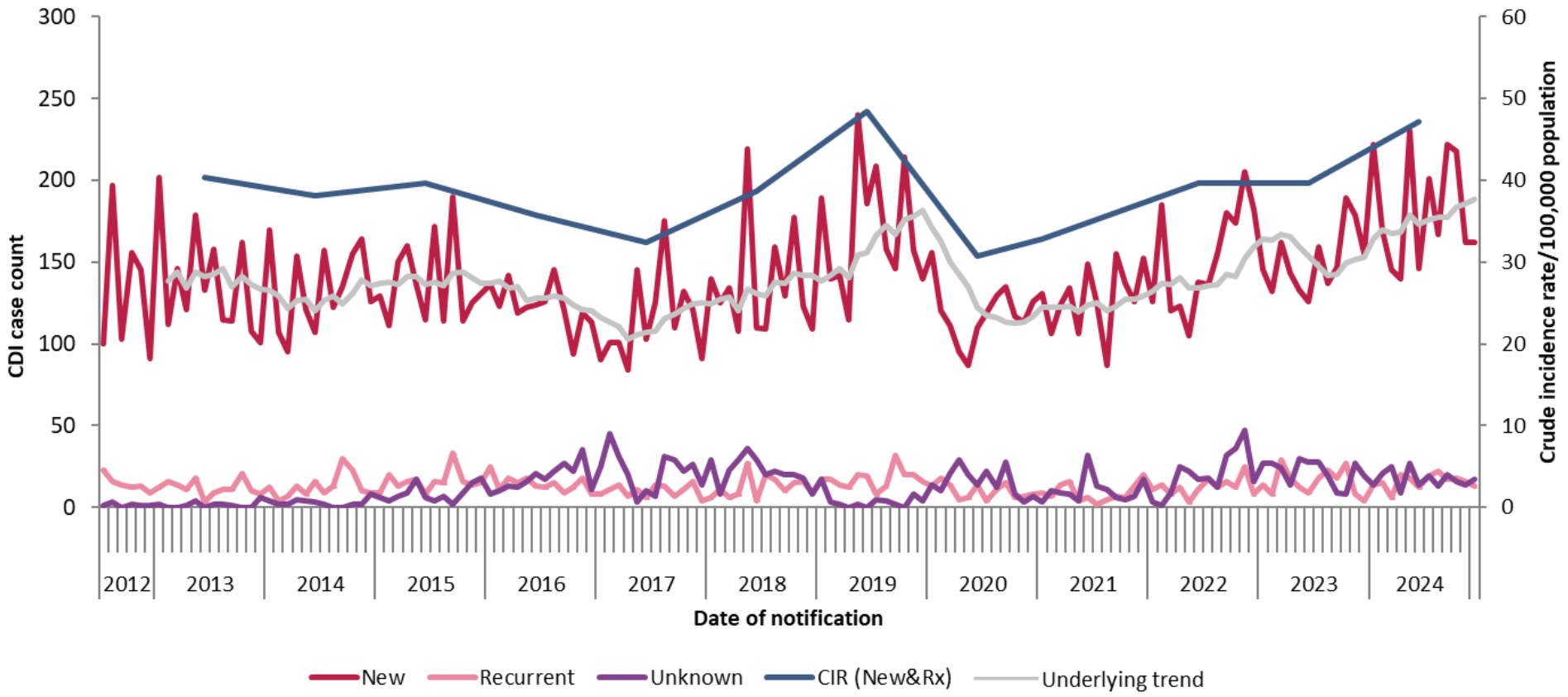
| Mandatory CIDR notifications to Public Health | 2024 | 2023 | 2019-2022 Mean |
|---|---|---|---|
| **Number of notifications** | **2583** | **2255** | **1999** |
| Number of new notifications | 2184 (85%) | 1807 (80%) | 1703 |
| Crude incidence rate* (new & recurrent cases) | 47.2 | 39.6 | 37.9 |
| Number of outbreaks | 16 | 13 | 9.5 |

*Crude incidence rate is the number of new and recurrent notifications per 100,000 population. Rates were calculated using the provisional 2022 census data, excluding children <2 years. (Source: CIDR)

## Key Points

- New notifications up by 21% vs. 2023
- Crude incidence rate highest in 5 years, similar to pre pandemic rate.
- Outbreaks nearly doubled vs 2019-2022 average

# CIDR Notifications by case type and year



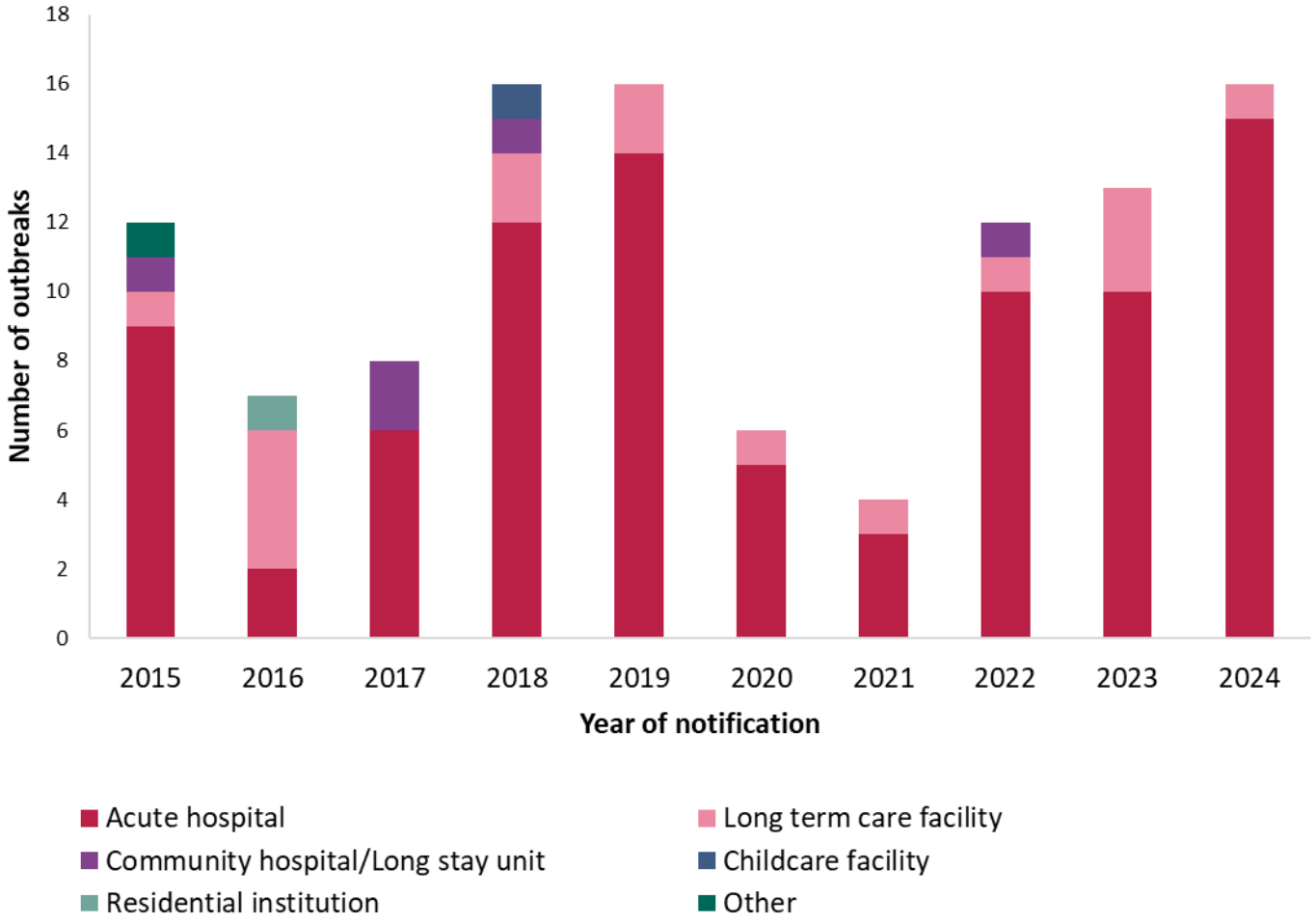

## Key Points

- Overall rise in cases
- Recurrent and Unknown cases consistently lower than new cases
- Rising incidence rate per 100,000 population.

# CDI outbreaks

## Key points

- 2024 had 16 outbreaks matching 2018 & 2019 peaks
- 15 occurred in acute hospitals
- Outbreaks rose sharply since 2021 (4 outbreaks)
- Non acute settings remain low



# 2024 CDI outbreaks by Sequence Type

| Sequence Type (ST) | No of Outbreaks |
|---|---|
| ST55 | 3 |
| ST42 | 2 |
| ST3 | 2 |
| ST2, ST6, ST8, ST11, ST17, ST49 | 1 each |
| No predominant type | 3 |

# CDI cases: Origin

| Enhanced surveillance cases | 2024 | 2023 | 2019-2022** |
|---|---|---|---|
| **Cases reported to enhanced surveillance system** | **2394** | **2105** | **1862** |
| Number of new cases | 1937 (81%) | 1791 (85%) | 1608 (86%) |
| Number of hospitals participating (public & private) | 62 (49 & 13) | 61 (49 & 12) | 54-57 |
| CDI incidence rate* (all hospital acquired cases) | 2.6 | 2.3 | 2.4 |
| **Origin: Location where infection was acquired** | | | |
| · Healthcare-associated cases | 1343 (56%) | 1194 (57%) | 1092 (59%) |
| - *Reporting hospital* | *1118 (83%)* | *974 (82%)* | *901 (83%)* |
| - *Long term care facility* | *133 (10%)* | *97 (8%)* | *104 (10%)* |
| - *Other hospital* | *89 (7%)* | *104 (9%)* | *78 (7%)* |
| - *Unknown healthcare facility* | *3 (0%)* | *19 (2%)* | *9 (1%)* |
| · Community-associated cases | 614 (26%) | 647 (31%) | 538 (29%) |
| · Discharged within 4-12 wks from HCF | 172 (7%) | 141 (7%) | 126 (7%) |
| · Unknown origin | 265 (11%) | 123 (6%) | 106 (6%) |

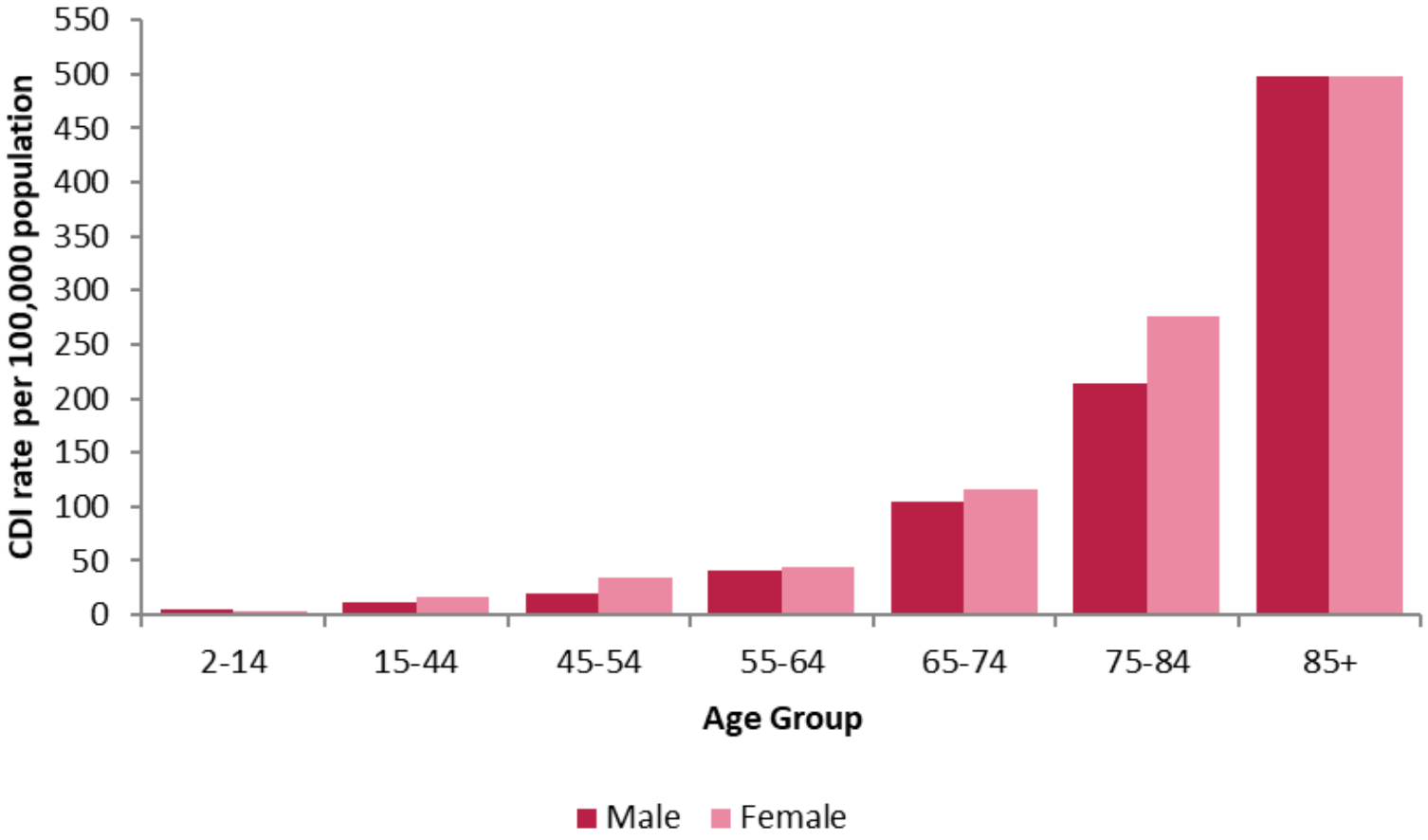
*CDI incidence rate is the number of new and recurrent cases per 10,000 bed days used

** Annual mean number of cases reported from 2019-2022 inclusive. (Source: HPSC). Note: Percentages have been rounded in this table

# CDI cases: Onset and severity

| Enhanced surveillance cases | 2024 | 2023 | 2019-2022** |
|---|---|---|---|
| **Cases reported to enhanced surveillance system** | **2394** | **2105** | **1862** |
| Number of new cases | 1937 (81%) | 1791 (85%) | 1608 (86%) |
| Number of hospitals participating (public & private) | 62 (49 & 13) | 61 (49 & 12) | 54-57 |
| CDI incidence rate* (all hospital acquired cases) | 2.6 | 2.3 | 2.4 |
| **Onset:Location where patients symptoms occurred** | | | |
| · Healthcare onset | 1223 (51%) | 1111 (53%) | 1015 (55%) |
| - *Reporting hospital* | *1025 (84%)* | *928 (84%)* | *836 (82%)* |
| - *Long term care facility* | *136 (11%)* | *92 (8%)* | *109 (11%)* |
| - *Other hospital* | *43 (4%)* | *61 (6%)* | *46 (5%)* |
| - *Unknown location* | *21 (2%)* | *30 (3%)* | *24 (2%)* |
| · Community onset | 980 (41%) | 908 (43%) | 798 (43%) |
| · Unknown onset | 191 (8%) | 86 (4%) | 48 (3%) |
| **Severity** | | | |
| Requiring ICU admission or colectomy | 57 (2%) | 79 (4%) | 42 (2%) |

# Age and Gender Distribution of CDI in 2024

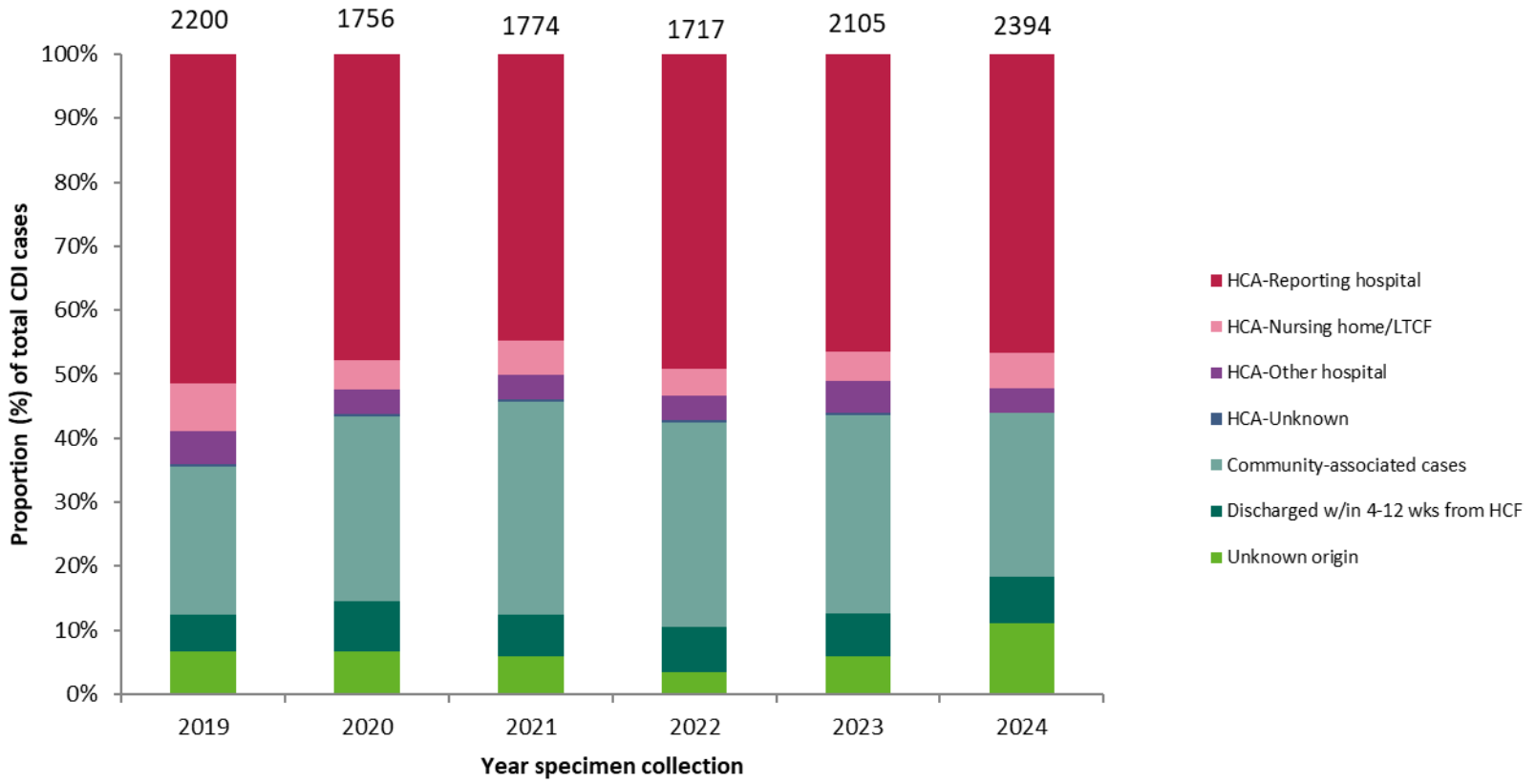



Rates calculated using 2022 CSO population census excluding children <2 years (Source: HPSC)

## Key Points

- Rates increase sharply with age, especially aged 75 years or older
- Highest CDI incidence seen in adults over 85years, with comparable rates in males and females
- CDI rates among children and younger adults remain low.

# Origin of CDI in Ireland by facility type




## Key Points

- Healthcare-associated cases from reporting hospitals accounts for 50%-60% of cases each year.
- Community cases have increased over the years
- Other Categories are stable or slightly decreasing.

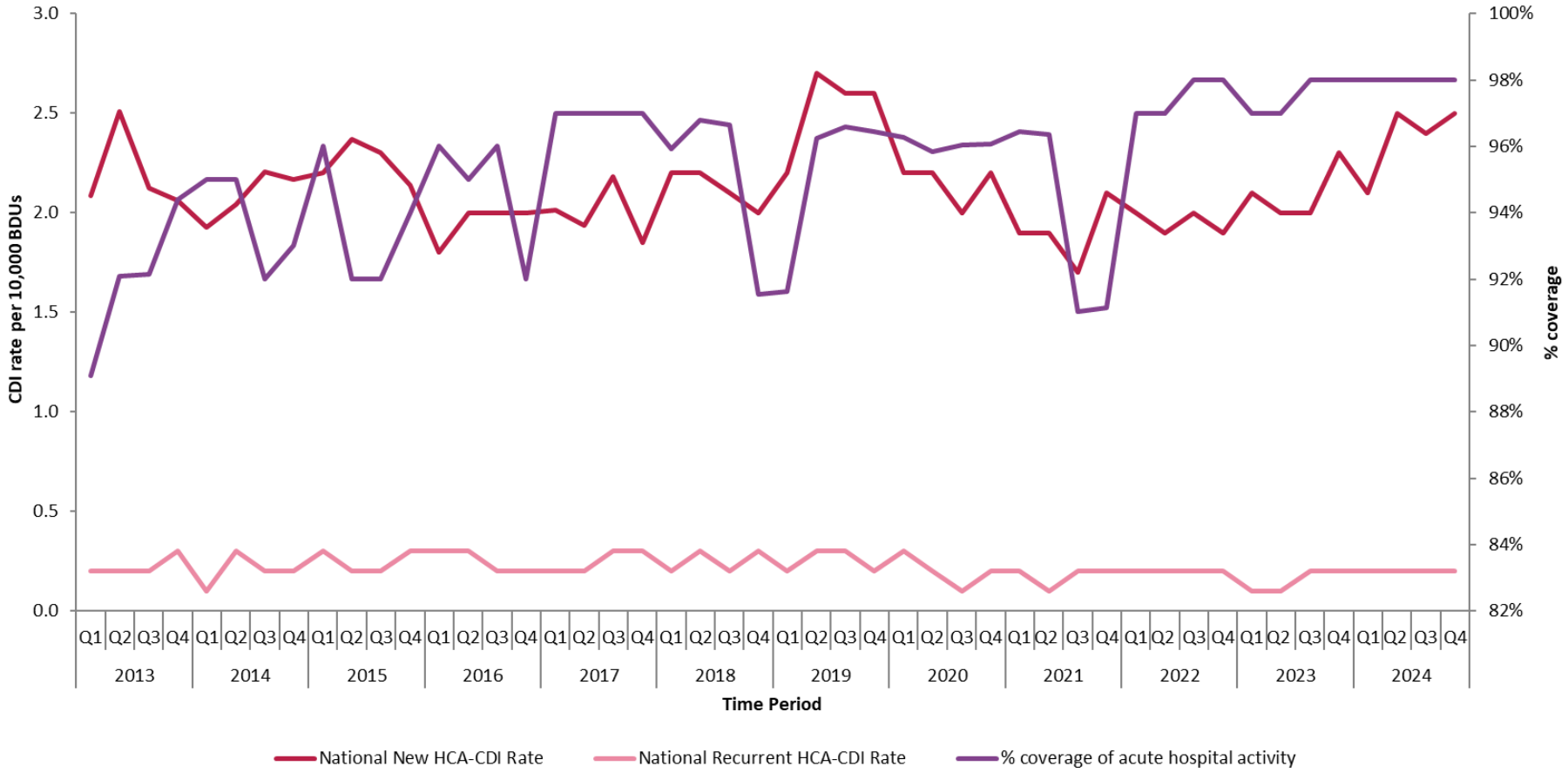
# Origin of infection with location at onset of symptoms of CDI cases in 2024

| | | | ONSET | | | | |
|---|---|---|---|---|---|---|---|
| | | | Community onset (CO) | Healthcare onset (HO) | Unknown onset | *Total HCA* | Total (%) |
| ORIGIN | Community-associated*<br>(CA) | | 565 | 45 | 4 | | **614 (26%)** |
| | Healthcare-associated**<br>(HCA) | *- Reporting hospital (HA)* | *161* | *957* | | ***1118*** | **1343(56%)** |
| | | *- Other hospital* | *52* | *35* | *2* | ***89*** | |
| | | *- Nursing home/LTCF* | *11* | *122* | | ***133*** | |
| | | *- Unknown* | *1* | *2* | | ***3*** | |
| | | | ***225 (17%)*** | ***1116 (83%)*** | ***2 (0.1%)*** | | |
| | Dx 4-12 weeks† (UA) | | 137 | 34 | 1 | | **172 (7%)** |
| | Unknown | | 53 | 28 | 184 | | **265 (11%)** |
| | Total (%) | | **980 (41%)** | **1223 (51%)** | **191 (8%)** | | **2,394** |

## Key Points

- Community-associated (CA): 26% of total CDI cases, with 41% community onset.
- Healthcare-associated (HCA): 56% of total CDI cases, with 51% healthcare onset. Most HCA cases (86%) are from the reporting hospital.
- Unknown origin: 11% of total CDI cases, with 8% unknown onset.

# Quarterly national rate of healthcare-associated CDI (new and recurrent)




## Key Points

- New HCA-CDI Rate: Fluctuates between 2 and 2.5 per 10,000 BDU
- Recurrent HCA-CDI Rate: Stable, below 0.5 per 10,000 BDU.
- Acute Hospital Activity Coverage: Increased to 98% in the more recent years.

# CDI sequence typing: 2024 HPSC & NRL matched cases including top three most common types

| | Total cases | | ST11 | | ST2 | | ST8 | |
|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % |
| **Total reported cases with sequence typing** | **884** | - | 106 | *12%* | 91 | *10%* | 85 | *10%* |
| **CDI toxin genotype** | | | | | | | | |
| ***tcdA* positive** | 817 | *92%* | 81 | *76%* | 87 | *96%* | 81 | *95%* |
| ***tcdB* positive*** | 855 | *97%* | 88 | *83%* | 90 | *99%* | 84 | *99%* |
| ***cdtA/cdtB* positive** | 161 | *18%* | 105 | *99%* | - | - | - | - |
| **CDI cases identified as part of clusters** | 515 | *58%* | 80 | *75%* | 41 | *45%* | 63 | *74%* |
| **CDI Case Type** | | | | | | | | |
| – New | 802 | *91%* | 93 | *88%* | 81 | *89%* | 78 | *92%* |
| – Recurrent | 55 | *6%* | 9 | *8%* | 5 | *5%* | 6 | *7%* |
| – Unknown | 27 | *3%* | 4 | *4%* | 5 | *5%* | 1 | *1%* |
| **CDI Origin** | | | | | | | | |
| – Healthcare-associated (HCA) | 648 | *73%* | 83 | *78%* | 68 | *75%* | 61 | *72%* |
| – Community associated (CA) | 166 | *19%* | 15 | *14%* | 19 | *21%* | 15 | *18%* |
| – Discharged 4-12 weeks from HCF | 55 | *6%* | 5 | *5%* | 3 | *3%* | 8 | *9%* |
| – Unknown | 15 | *2%* | 3 | *3%* | 1 | *1%* | 1 | *1%* |
| **CDI Severity** | | | | | | | | |
| Critical care admission or colectomy | 15 | *2%* | 3 | *3%* | 1 | *1%* | 3 | *4%* |

* The absence of reporting of toxB from some isolates by whole genome sequencing may be related to a truncated (shortened) toxB gene rather than the absence of the gene.

## Key Points

- 884 cases matched between NRL and HPSC. ST11 (12%), ST2 (10%), and ST8 (10%) were the most frequent
- tcdA & tcdB were highly prevalent overall (92% and 97% respectively)
- 58% of typed cases were part of clusters, highest in ST11 (75%) and ST8 (74%)
- Most were new (91%) and health-care associated cases (73%)
- Severity was 2% overall, slightly higher in ST8 (4%) and ST11 (3%)

# Reported Antibiotic Treatment in 2024

| Reported Antibiotic Treatment | Cases (n) | Percentage (%) |
|---|---|---|
| Vancomycin | 849 | 54.5 |
| Fidaxomycin | 459 | 29.5 |
| Metronidazole | 178 | 11.4 |
| **Combination Therapy** | | |
| Metronidazole + Vancomycin | 53 | 3.4 |
| Fidaxomycin + Vancomycin | 12 | 0.8 |
| Fidaxomycin + Metronidazole | 5 | 0.3 |
| Fidaxomycin + Metronidazole + Vancomycin | 1 | 0.1 |
| **Total** | **1557** | **100** |

## Key Points

- Vancomycin was the most used treatment prescribed in 55% of cases.
- Fidaxomycin was used in nearly 1 in 3 treated cases (30%)
- Monotherapy accounted for over 95% of all reported treatment regimens.
- Fidaxomycin was the most used antibiotic for treating recurrent CDI at 43% followed by vancomycin at 42%.

Please note: While treatment type is recorded, treatment outcomes are not captured as part of the enhanced surveillance programme.

# Acknowledgments

HPSC & National Reference Laboratory Service (NRL) for *C. difficile* would like to sincerely thank all who have contributed to this report, especially:

- Surveillance Scientists,
- Infection Prevention and Control Nurses,
- Medical Scientists,
- Clinical Microbiologists,
- Public Health
- ECDC



Suggested citation: HSE-Health Protection Surveillance Centre. *C. difficile* 2024 Annual Report

# Technical Notes

- Data are based on statutory notifications and were extracted from Computerised Infectious Disease Reporting (CIDR) system on 7th April 2025. Data are subject to ongoing review, validation and update. As a result, figures in this report may differ from previously published figures.
- Data in this report are presented based on date of notification to the Health Protection Surveillance Centre (HPSC) unless otherwise stated
- This report contains enhanced cases received up to 29/04/2025. Cases received after this date will be included in subsequent/next report

# Further Information

Any queries or feedback are most welcome. Please contact cdifficiledata@hpsc.ie