



## Enhanced Surveillance of *Clostridioides* (*Clostridium*) *difficile* Infection in Ireland:

### Q2 2025 National Report

#### Key Points

- This report includes enhanced surveillance of *C. difficile* infection (CDI) in Ireland for Q1 and Q2 2025 with a focus on Q2 2025. During Q2 2025, a total of 549 cases of CDI were reported to the enhanced surveillance scheme, with 58 of the 62 acute Irish public and private hospitals now participating in these quarters.
- The national overall rate of CDI in hospitalised patients in Q2 2025 was 4.1 cases per 10,000 bed days used (BDU) [419 cases], which is lower to that reported for Q2 2024 [470 cases; rate = 4.3]
- There were 273 cases of CDI deemed to be hospital-acquired (HA-CDI), of which 240 were new, representing a national HA-CDI rate of 2.3 [median rate = 1.4]
- With regard to acquisition, while *C. difficile* was mostly associated with acute hospitals (273; 50%), there were many cases associated with the community (159; 29%) and long-term care facilities (27; 8%)
- CDI symptom onset occurred in the community for 41% of all cases (n=224):this highlights the importance of considering CDI in patients with potentially infectious diarrhoea across all healthcare settings, including hospitals, primary care, and long-term care facilities. It also reinforces the need for standardised testing protocols in all microbiology laboratories—ensuring that all unformed faecal specimens from patients aged  $\geq 2$  years are routinely tested for CDI regardless of patient location or clinician request.
- Whole genome sequencing was performed at the Irish *C. difficile* National Reference Laboratory (NRL) on isolates during Q2 2025. ST11 (16%), ST8 (10%) and ST2 (9%) were most frequently reported with 59 clusters notified.

## **Introduction**

*Clostridium difficile* infection (CDI) continues to be a significant concern in healthcare settings, particularly in hospitals and long-term care facilities. This report provides an overview of the current CDI trends, including the incidence, hospital-acquired rates, and sources of infection. It also highlights the results of whole genome sequencing performed on *C. difficile* isolates to better understand the epidemiology and potential outbreaks. This data is essential for monitoring the effectiveness of infection prevention and control measures across healthcare settings.

## **Methodology**

The CDI enhanced surveillance protocol with all details on the programme is available on the HPSC website at: <https://www.hpsc.ie/a-z/microbiologyantimicrobialresistance/clostridioidesdifficile/enhancedsurveillance/>.

## **Results**

Results are displayed in 4 sections below

Part 1: National CDI Epidemiology

Part 2: Hospital-acquired CDI (HA-CDI) Epidemiology

Part 3: *C. difficile* Testing Methods

Part 4: *C. difficile* Irish National Reference Laboratory (NRL) Genomic Sequence results

## Part 1: National CDI Epidemiology

**Table 1. National CDI epidemiology: Current quarters versus same quarters in 2024**

Summary	2024Q1	2024Q2	2025Q1	2025Q2
<b>Total reported cases</b>	<b>559</b>	<b>606</b>	<b>532</b>	<b>549</b>
<b>CDI case type</b>				
New Cases	450(81%)	476(79%)	451(85%)	454(83%)
Recurrent cases	53(9%)	50(8%)	52(10%)	64(12%)
Unknown cases	56(10%)	80(13%)	29(5%)	31(6%)
<b>CDI Origin</b>				
<b>-Healthcare Associated cases</b>	<b>308(55%)</b>	<b>352(58%)</b>	<b>322(61%)</b>	<b>332(60%)</b>
Reporting hospital	260(84%)	303(86%)	267(83%)	273(82%)
Long Term Care Facility	24(8%)	30(9%)	39(12%)	27(8%)
Other Healthcare Facility	23(7%)	18(5%)	14(4%)	31(9%)
Unknown Healthcare Facility	1(0%)	1(0%)	2(1%)	1(0%)
<b>-Community associated cases*</b>	<b>149(27%)</b>	<b>148(24%)</b>	<b>152(29%)</b>	<b>159(29%)</b>
<b>-Discharged 4-12 weeks from HCF</b>	<b>48(9%)</b>	<b>33(5%)</b>	<b>29(5%)</b>	<b>21(4%)</b>
<b>-Unknown Origin</b>	<b>54(10%)</b>	<b>73(12%)</b>	<b>29(5%)</b>	<b>37(7%)</b>
<b>CDI Onset</b>				
<b>-Healthcare Onset</b>	<b>278(50%)</b>	<b>332(55%)</b>	<b>298(56%)</b>	<b>289(53%)</b>
Reporting hospital	233(84%)	280(84%)	244(82%)	255(88%)
Long Term Care Facility	26(9%)	40(12%)	39(13%)	24(8%)
Other Healthcare Facility	11(4%)	8(2%)	9(3%)	8(3%)
Unknown Location	8(3%)	4(1%)	6(2%)	2(1%)
<b>-Community Onset</b>	<b>251(45%)</b>	<b>218(36%)</b>	<b>206(39%)</b>	<b>224(41%)</b>
<b>-Unknown Onset location</b>	<b>30(5%)</b>	<b>56(9%)</b>	<b>28(5%)</b>	<b>36(7%)</b>
<b>CDI Severity</b>				
Critical care admission or colectomy	11(2%)	15(2%)	12(2%)	17(3%)

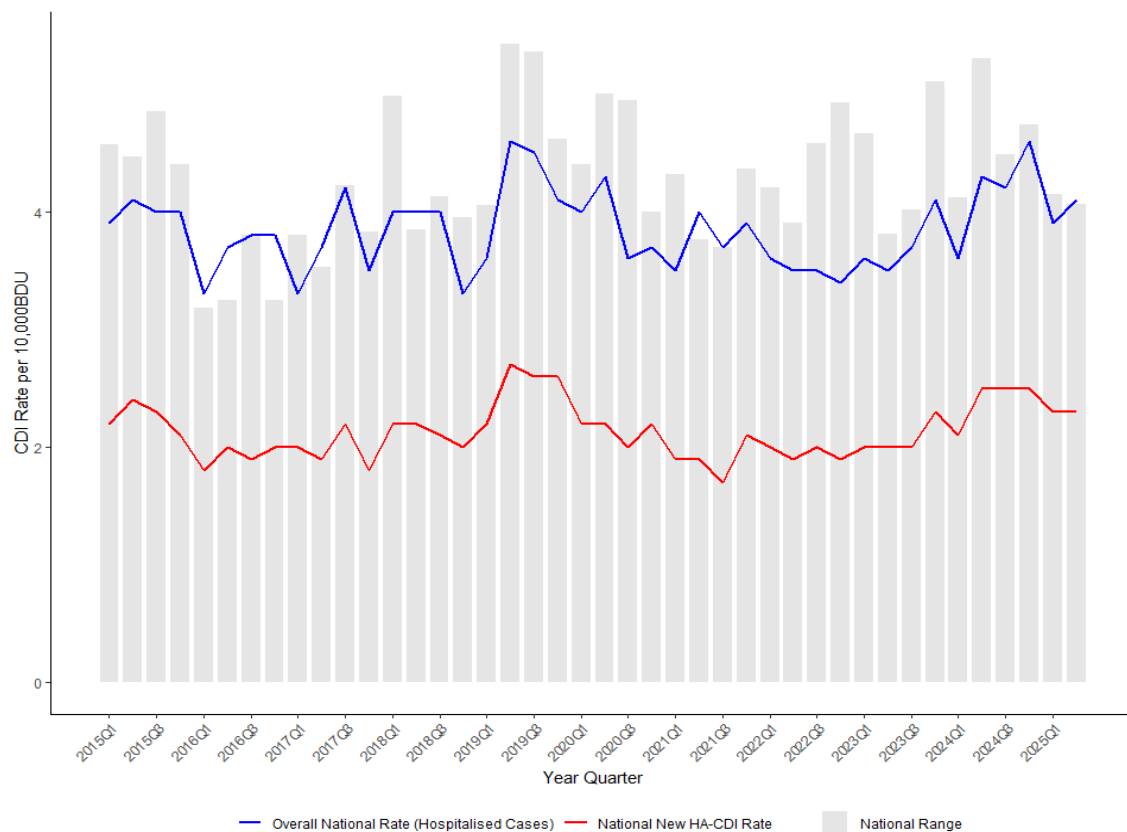
\*7 (5%)community-acquired cases received ambulatory care in Q1 2025 which was described as: Nephrology/Dialysis (n=1); Oncology (n=4) Haematology/Oncology (n=2). 10 (6%) community-acquired cases received ambulatory care in Q2 2025 which included Nephrology/Dialysis (n=8), Haematology/Oncology (n=2). This compares to 5% in Q1 and Q2 2024.

**Table 2. Severity of illness in this quarter**

Surgery (Colectomy)	ICU Admission			Total
	Yes	No	Unknown	
Yes	0	6	0	6
No	11	454	1	466
Unknown	0	11	66	77
<b>Total</b>	<b>11</b>	<b>471</b>	<b>67</b>	<b>549</b>

## Part 2: Hospital-acquired CDI (HA-CDI) Epidemiology

**Figure 1. Quarterly National HA-CDI rates over the last ten years**



Overall National Rate (Hospitalised Cases) = rate of all cases per 10,000 bed days used where Yes has been recorded for Hospital admission.

National New HA-CDI Rate = the rate of new healthcare-associated CDI cases per 10,000 bed days used, where case type is recorded as 'New', origin is 'HCAI', and origin facility is 'This hospital'.

**Table 3. Quarterly HA-CDI data over the last two years**

Year Q	Number of hospitals	Number of Cases Reported				CDI rate per 10,000 BDUs		
		New	Recurrent	Unknown	Total	Rate	Range	Median
2023Q3	59	216	24	3	243	2.0	0.0–4.0	0.9
2023Q4	60	248	22	3	273	2.3	0.0–5.1	1.2
2024Q1	59	236	19	5	260	2.1	0.0–4.1	1.0
2024Q2	59	269	25	9	303	2.5	0.0–5.3	1.0
2024Q3	57	257	20	1	278	2.5	0.0–4.5	1.4
2024Q4	57	257	20	2	279	2.5	0.0–4.7	1.0
2025Q1	58	243	22	2	267	2.3	0.0–4.1	0.6
2025Q2	58	240	32	1	273	2.3	0.0–4.1	1.4

### Part 3: *C. difficile* Testing Methods

All hospitals participating in the enhanced CDI surveillance system reported use of a *C. difficile* testing method recommended by the updated National Clinical Guidelines for Surveillance, Diagnosis & Management of *C. difficile* Infection in Ireland (2014). This includes either one of a variety of two-step testing methods or a single-step method using molecular polymerase chain reaction (PCR) test for *C. difficile* toxin gene as displayed in Table 3, along with stratification by hospital type.

**The most recent European guidelines (ESCMID, 2021) recommend the use of a two-step testing algorithm, due to concerns about the specificity of single-step molecular tests when used alone.**

**Table 4 . *C. difficile* testing methods utilised in current quarter, by hospital type.**

Test Category	Hospital Type				
	General	Private	Specialist	Tertiary	Total
1 STEP: PCR for toxin gene	2	0	3	0	5
2 STEP: GDH AND Toxin EIA	0	2	0	0	2
2 STEP: GDH AND TOXIN EIA with TOXIN PCR confirmation	4	6	2	0	12
2 STEP: GDH EIA AND Toxin PCR	3	0	0	0	3
2 STEP: PCR and EIA confirmation	15	5	8	8	36
<b>Total</b>	<b>24</b>	<b>13</b>	<b>13</b>	<b>8</b>	<b>58</b>

## Part 4: *C. difficile* Irish NRL Genomic Sequence results

**Table 5 . CDI NRL sequence results matched with HPSC enhanced data.**

	Total cases		ST11		ST8		ST2	
	n	%	n	%	n	%	n	%
<b>Total reported cases with sequence typing</b>	365	-	39	-	50	-	45	-
<b>CDI toxin genotype</b>								
tcdA positive	321	88	3	8	50	100	45	100
tcdB positive	363	99	39	100	50	100	45	100
tcdC positive	345	95	39	100	50	100	45	100
cdtA/cdtB positive	77	21	39	100	0	0	3	7
<b>CDI cases identified as part of clusters</b>	162	44	24	62	28	56	17	38
<b>CDI case type</b>								
New Cases	343	94	39	100	49	98	43	96
Recurrent cases	18	5	0	0	1	2	1	2
Unknown cases	4	1	0	0	0	0	1	2
<b>CDI Origin</b>								
-Healthcare Associated cases	279	76	27	69	44	88	33	73
-Community associated cases	70	19	10	26	4	8	8	18
-Discharged 4-12 weeks from HCF	12	3	2	5	1	2	4	9
-Unknown Origin	4	1	0	0	1	2	0	0
<b>CDI Severity</b>								
Critical Care admission or colectomy	10	3	0	0	2	4	2	4

The NRL received 321 *C. difficile* isolates in Q1 2025 and 232 *C. difficile* isolates in Q2 2025 (total n=553) spanning 26 hospitals nationally out of which 365(66%) matched with the enhanced surveillance programme at the HPSC as displayed in Table 5. (Please note not all isolates sent to NRL are notifiable CDI cases, isolates can be sent for epidemiological studies, further investigation and so forth. Reason for typing is not currently recorded

For genomic data, please refer to the Public Health Laboratory website, for the *C. difficile* 2024 NRL annual report which is available by clicking [here](#).

The continued development of this Irish national reference laboratory service will add significantly to the understanding of the epidemiology of this significant infection and ultimately influence its control and preventative actions, both here in Ireland and internationally.

## **Acknowledgments**

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**Further Information** Any feedback or queries are most welcome. Please contact [cdifficiledata@hpsc.ie](mailto:cdifficiledata@hpsc.ie) or [microteam@hpsc.ie](mailto:microteam@hpsc.ie).

## Appendix A: National CDI Enhanced Surveillance Participating Hospitals

Hospital Group	Hospital Name	Category	Type of Hospital	Area
Dublin Midlands	Coombe Women and Infant's University Hospital	Specialist	-	B
	Midland Regional Hospital Portlaoise	General	Model 3	B
	Midland Regional Hospital Tullamore	General	Model 3	B
	Naas General Hospital	General	Model 3	B
	St James's Hospital	Tertiary	Model 4	B
	St Luke's Hospital, Dublin	Specialist	-	B
	Tallaght University Hospital	Tertiary	Model 4	B
Ireland East Hospital Group	Cappagh National Orthopaedic Hospital, Dublin	Specialist	-	A
	Mater Misericordiae University Hospital	Tertiary	Model 4	A
	Midland Regional Hospital Mullingar	General	Model 3	B
	National Maternity Hospital, Holles Street	Specialist	-	C
	National Rehabilitation Hospital, Dun Laoghaire	Specialist	-	C
	Our Lady's Hospital, Navan	General	Model 3	A
	Royal Victoria Eye & Ear Hospital, Dublin	Specialist	-	C
	St Columcille's Hospital, Loughlinstown	General	Model 2	C
	St Luke's General Hospital, Kilkenny	General	Model 3	C
	St Michael's Hospital, Dun Laoghaire	General	Model 2	C
	St Vincent's University Hospital	Tertiary	Model 4	C
	Wexford General Hospital	General	Model 3	C
RCSI Hospital Group	Beaumont Hospital	Tertiary	Model 4	A
	Cavan General Hospital	General	Model 3	A
	Connolly Hospital, Blanchardstown	General	Model 3	A
	Louth County Hospital, Dundalk	General	Model 2	A
	Our Lady of Lourdes Hospital, Drogheda	General	Model 3	A
	Rotunda Hospital Dublin	Specialist	-	A
Saolta Hospital Group	Letterkenny University Hospital	General	Model 3	F
	Mayo University Hospital	General	Model 3	F
	Portluncula University Hospital	General	Model 3	F
	Roscommon University Hospital	General	Model 2	F
	Sligo University Hospital	General	Model 3	F
	University Hospital Galway	Tertiary	Model 4	F
South/South West Hospital Group	Bantry General Hospital	General	Model 2	D
	Cork University Hospital	Tertiary	Model 4	D
	Cork University Maternity Hospital	Specialist	-	D
	University Hospital Kerry	General	Model 3	D
	Lourdes Orthopaedic Hospital, Kilcreene, Kilkenny	Specialist	-	C
	Mallow General Hospital	General	Model 2	D
	Mercy University Hospital, Cork	General	Model 3	D
	South Infirmary - Victoria University Hospital, Cork	General	Model 2	D
	Tipperary University Hospital	General	Model 3	C
UL Hospital Group	University Hospital Waterford	Tertiary	Model 4	C
	Groom Hospital	Specialist	-	E
	Ennis Hospital	General	Model 2	E
	Nenagh Hospital	General	Model 2	E
	St John's Hospital	General	Model 2	E
	University Hospital Limerick	Tertiary	Model 4	E
	University Maternity Hospital Limerick	Specialist	-	E
	Aut Even, Kilkenny	Private	-	
	Beacon Hospital, Dublin	Private	-	
	Blackrock Clinic	Private	-	
	Bon Secours, Cork	Private	-	
	Bon Secours, Galway	Private	-	
	Bon Secours, Glasnevin	Private	-	
	Bon Secours, Tralee	Private	-	
	Galway Clinic	Private	-	
	Hermitage Medical Clinic, Dublin	Private	-	
	Mater Private, Dublin	Private	-	
	Mater Private, Cork	Private	-	
	St Vincents Private Hospital	Private	-	
	UPMC Sports Surgery Clinic	Private	-	
Children's Health Ireland	Children's Health Ireland at Tallaght	Specialist	-	
	Children's Health Ireland at Temple St	Specialist	-	



## Appendix B: Case definitions for CDI Enhanced Surveillance

### Case Definitions for Surveillance of *Clostridioides difficile* Infection

For surveillance purposes, a confirmed *Clostridioides difficile* infection (CDI) case is a patient two years or older, to whom one or more of the following criteria applies:

- Diarrhoeal\* stools or toxic megacolon, with either a positive laboratory assay for *C. difficile* toxin A (TcdA) and/or toxin B (TcdB) in stools or a toxin-producing *C. difficile* organism detected in stool via culture or other means.
- Pseudomembranous colitis (PMC) revealed by lower gastrointestinal endoscopy.
- Colonic histopathology characteristic of *C. difficile* infection (with or without diarrhoea) on a specimen obtained during endoscopy, colectomy or autopsy.

\* Diarrhoea is defined as three or more loose/watery bowel movements (which are unusual or different for the patient) in a 24 hour period

#### CASE TYPE

- **New Case of CDI:**
  - The first episode of CDI, OR
  - A subsequent episode of CDI with onset of symptoms **more than eight weeks** after the onset of a previous episode.
- **Recurrent Case of CDI:**
  - A patient with an episode of CDI that occurs **within eight weeks** following the onset of a previous episode **provided that** CDI symptoms from the earlier episode resolved **with or without** therapy.

#### ONSET

- **Healthcare onset** » Symptoms start during a stay in a healthcare facility.
- **Community onset** » Symptoms start in a community setting, outside healthcare facilities.
- **No information available** » If no information was available on onset of symptoms

#### ORIGIN

- **Healthcare-associated case.** This is a CDI patient with either:
  - Onset of symptoms at least 48 hours following admission to a healthcare facility (healthcare-onset, healthcare-associated), OR
  - With onset of symptoms in the community within four weeks following discharge from a healthcare facility (community-onset, healthcare-associated).
- **Community-associated case.** This is a CDI patient with either:
  - Onset of symptoms while outside a healthcare facility, and without discharge from a healthcare facility within the previous 12 weeks (community-onset, community-associated), OR
  - With onset of symptoms within 48 hours following admission to a healthcare facility without residence in a healthcare facility within the previous 12 weeks (healthcare-onset, community-associated).
- **Discharged 4 – 12 weeks from a healthcare facility**
  - » This is a CDI patient who was discharged from a healthcare facility between four and 12 weeks before the onset of symptoms.
  - **No information available**

#### SEVERE CDI CASE

This is a CDI patient to whom any of the following criteria apply:

- Admission to an intensive care unit for treatment of CDI or its complications (e.g., for shock requiring vasopressor therapy)
- Surgery (colectomy) for toxic megacolon, perforation or refractory colitis
- Death within 30 days after diagnosis if CDI is either the primary or a contributive cause