An Roinn Sláinte
Department of Health

National Healthcare Quality Reporting System

Report 2021/2022

Prepared by the National Patient Safety Office

National Patient Safety Office
Oifig Náisiúnta um Shábháilteacht Othar

The National Patient Safety Office (NPSO) was established in December 2016 by the Minister for Health, to provide leadership for patient safety policy and relevant legislation for the healthcare system.

The NPSO provides leadership and direction with regard to embedding a national framework for clinical effectiveness and clinical audit, developing patient safety policy and legislation and progressing patient safety priorities and initiatives through enhancing patient safety surveillance and evidence-based policy-making.

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NATIONAL HEALTHCARE QUALITY REPORTING SYSTEM 2021/2022

The National Healthcare Quality Reporting System 2021/2022 Report includes two reporting cycles. It presents 2020 and 2021 indicator data for the first time, which reflects healthcare provided during the COVID-19 pandemic. The response to the COVID-19 pandemic required significant reorganisation and refocusing of almost all health services. There was unprecedented interruption to much normal healthcare delivery, particularly during COVID-19 surges. Given these complexities, the 2020 and 2021 data included in this report should be interpreted with caution.

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Minister's Foreword

I welcome the publication of the National Healthcare Quality Reporting System (NHQRS) Report 2021/2022 by my Department. This 7th NHQRS report continues to provide publicly available information on the quality of care provided in our healthcare system, measured across timeframes and against international standards. It remains a key example of this Government's ongoing commitment to providing safer and better healthcare through a patient-centred approach.

This year's report continues to expand the breadth and depth of analysis of our healthcare reporting systems in line with policy priorities. For example, there is new information included on the immunisation rates for HPV among boys and patient reported experience of care through the COVID-19 pandemic. An important and new development is the inclusion for the first time, of thematic chapters of current relevance so there is particular focus on how COVID-19 and women's health matters interact with the findings across the NHQRS indicators. This shows how the NHQRS indicators on quality of care come together to give an overarching snapshot on a priority area and allow us to understand quality issues in a more complete way. It also helps identify gaps and areas for potential developmental work.

The unprecedented impact of COVID-19 was felt across all health and social care services, both in Ireland and globally. This year's NHQRS report is unique in that it presents data from both 2020 and 2021, reflecting the quality of healthcare care delivered from the earliest stages of the pandemic in March 2020 through the various phases of response to the end of 2021. To better understand how the pandemic impacted on the quality of our health services through the lens of the NHQRS indicators, the report includes a COVID-19 chapter to further explore this. Many of the NHQRS indicators showed remarkable resilience to the effects of the pandemic, with others showing more marked changes. While it is timely and important that we recognise and reflect upon these changes, further cycles of NHQRS, considered along with wider health information data sets, will be necessary to more fully understand and draw conclusions about the longer-term impact of the pandemic on the quality of health service delivery.

Improving health services for women in Ireland is a top priority for me as Minister. As part of this, in the Women's Health Action Plan for 2022-2023, I committed to focusing on women's health through the NHQRS. I am delighted to see a dedicated chapter to women's health within this year's report which puts a spotlight on the quality of care provided to women over their lifetime. This report has shown the positive and sustained improvements in cancer survival for women across five cancer types while highlighting the differences between genders in the rates of hospitalisation for asthma and patient reported experience of care. I look forward to the continued inclusion of healthcare quality indicators with a focus on women's health in future NHQRS Reports to better understand women's quality health outcomes.

Despite the challenging times our health services have faced through 2020 and 2021, the NHQRS indicator data in this year's report highlights some significant achievements for our health services. A notable example of this was that the 75% target uptake rate for influenza vaccination for those age 65 years and older was achieved for the first time in the 2021/2022 flu season. This is testament to the co-ordinated and responsive approach by our healthcare system to vaccination.

Areas where there were notable changes in NHQRS indicator data in 2020 and 2021 included rates of hospitalisation for COPD and asthma, cancer surgical activity and antibiotic consumption. Given the complexity of healthcare delivery during the pandemic, the reason for these changes is likely to be multi-factorial and further analysis is required to fully understand these changes and any longer-term impact.

A constant priority in our healthcare system is the assessment of the patient experience through evaluating a patient's journey. The National Inpatient Experience Survey introduced new questions in the 2021 survey asking people about their care during the pandemic. I am pleased to report that a sustained high response rate was achieved with the majority of people continuing to report a positive overall experience in hospital.

The report also considers indicators on healthcare associated infections and antimicrobial consumption. This remains an important focus and such measurement is key to the ongoing surveillance of these areas as part of Ireland's international commitments and response to antimicrobial resistance under Ireland's second One Health National Action Plan on Antimicrobial Resistance 2021 – 2025.

I would like to recognise the contributions of all of those involved in this Report's preparation and publication. In particular, I thank the patient representatives, healthcare workers and staff, healthcare providers and organisations across our services that collect and collate these important data. Their input is essential in ensuring the NHQRS report remains robust, relevant and reflects 'quality' in the truest sense of improving patient care and experience.

The NHQRS was first published in 2015 and remains a unique resource of data on healthcare quality. As we move forward with the implementation of reforms under Sláintecare and the Health Systems Performance Assessment Framework for Ireland, it is important that we continue to focus on and further develop quality data for quality care.

I firmly believe that the transparent and regular reporting of information on the quality of our health service is essential in informing the decisions that service providers, policy makers and the public make about how we design and reform our health services to meet the changing needs of our society.

Stephen Donnelly TD
Minister for Health

Foreword from the Chief Medical Officer and Chief Nursing Officer

The National Healthcare Quality Reporting System (NHQRS), now in its 7th cycle, is firmly embedded as a key national healthcare quality and patient safety report. Over this time the NHQRS has formed an integral part of the national patient safety and quality infrastructure and it remains central to the evolution of the Department of Health's work in this space. The publication of the NHQRS is fundamental to exhibiting the quality of Irish healthcare to people nationally and internationally. Analysis of robust data assists us to collaborate as a whole system to address the ongoing health service needs of our population and ensure that all patients receive appropriate, safe and timely care.

This year's publication of the NHQRS is unique in that it provides two years of data on the quality of Ireland's healthcare structures, processes and outcomes. This timeframe is particularly significant as it includes data recorded at the onset of the COVID-19 pandemic through to the end of 2021 and is therefore reflective of our healthcare system during the COVID-19 pandemic. The response required from health and social care services as the pandemic unfolded led to unprecedented interruption to much normal healthcare activity both within community and acute settings with significant reorganisation and refocusing of almost all health services, presenting considerable challenges to the continued delivery of healthcare, particularly during surges of COVID-19. During the waves in COVID-19 throughout 2020 and 2021, high case numbers were seen across the country which led to additional and sustained pressure on health services and resulted in the curtailment of the delivery of scheduled care and significant challenges to well-established pathways of care to cope with rising numbers of covid patients. The in-depth look at the COVID-19 pandemic through the lens of the NHQRS indicators in this year's report is an essential tool to aid the ongoing evaluation of the challenges presented by the pandemic and its impact on the Irish healthcare system.

Furthermore, the publication of this Report is part of the quality improvement cycle which will assist our health care system to continue its valuable work in achieving an integrated healthcare system as envisaged in Sláintecare. The cyclical nature of the NHQRS reporting process is particularly important in enabling reflection on the progress that is being made to improve quality in our health service over time. The Report prompts us to continue the partnership and innovative approach which epitomised the pandemic response and build on the lessons learned to further improve our services.

The agile and iterative nature of the NHQRS is reflected in this year's report with the expansion of existing indicators regarding HPV vaccination for boys and patient reported experience measures focused on care during the pandemic and the inclusion of two new thematic chapters providing a COVID-19 and Women's Health lens on NHQRS indicators. The inclusion of a women's health chapter is particularly welcome as it will provide evidence to drive the Department's ambition of delivering a health service which supports better health outcomes and health experiences for women and all of our population groups in Ireland, in a targeted and tangible way.

This year's report highlights many positive improvements including the increase in influenza vaccination for those age 65 years and older, improvements in cancer survival rates and the continued decrease in mortality for both types of stroke. On the other hand, it also puts a spotlight on areas which require a continued focus in the coming years including immunisation uptake rates for vaccines administered as part of the Childhood Vaccination Programme which have remained below targets over a number of years, communication regarding continuing medicines at home after discharge from hospital and chronic use of benzodiazepine medicines in those over 65 years of age, particularly in women.

The development of this publication is coordinated by the National Patient Safety Office in collaboration with the Statistics and Analytics Unit in the Department of Health. The NHQRS would not be possible without the robust data collection processes of a wide range of data providers organisations, stakeholders and healthcare workers. Their commitment to this process, enabling the publication of the NHQRS has been vital. We also want to thank the Governance Committee and the Technical Group for their time and efforts in developing this year's Report. This Department looks forward to further collaboration with members of these groups in the coming years as we continue to develop the NHQRS as a pivotal tool in driving improvement in the quality of our healthcare services in order to make significant positive impacts on patient access, outcomes and experience.

Prof Breda Smyth, Chief Medical Officer and Rachel Kenna, Chief Nursing Officer

ABOUT THE REPORT

7TH NHQRS REPORT

2 REPORTING CYCLES

10 DATA SOURCES (INCLUDING 1 PATIENT EXPERIENCE SURVEY)

43 INDICATORS ACROSS 5 DOMAINS

SCOPE OF DATA:

2020 and 2021
And earlier years

Reflects healthcare provided during the COVID-19 pandemic

NEW DATA:

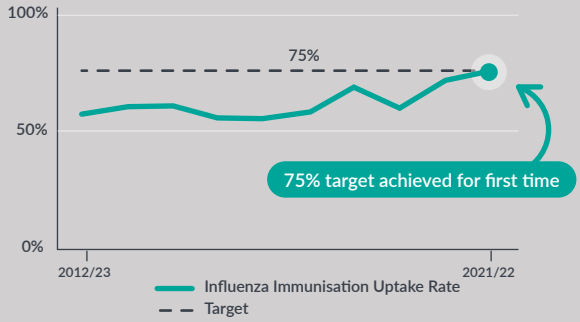
- HPV vaccination uptake for boys
- Patient experience in hospital during the pandemic

2 NEW THEMATIC CHAPTERS:

- COVID-19
- Women's Health

FACTS AND FIGURES

Flu vaccination uptake rate for people ≥65 years



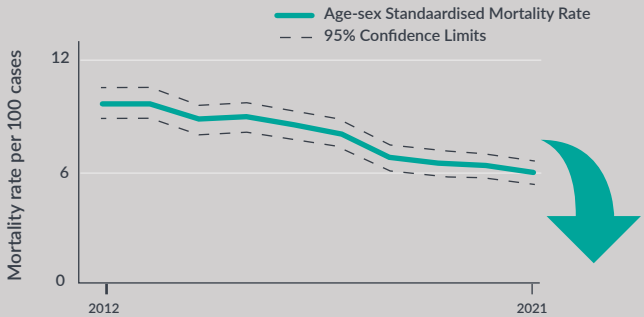
Immunisation uptake rate below target for:

MMR	90% (Target 95%)
MenC	88% (Target 95%)
HPV	74% (Target 85%)
Flu vaccination for Healthcare workers	65% (Target 75%)

5- year cancer survival rates continue to improve

- Breast (88%)
- Cervical (65%)
- Colorectal (66%)
- Lung (24%)

30-day mortality for Ischaemic stroke continued to decrease



Patient reported experience in hospital

83% reported positive overall experience and being treated with dignity and respect

62% of people said they had no worries or fears about COVID when in hospital

57% of patients completely understood the purpose of the medicines they were to take home with them after hospital discharge

Long-term Benzodiazepine prescriptions per 1,000 people ≥65 years are higher for women than men

46
per 1,000 people

99
per 1,000 people

Executive Summary

The National Healthcare Quality Reporting System (NHQRS) provides information on a broad range of measures of health service structures, processes and outcomes with the purpose of providing a means of comparison against international data and internationally accepted best practice. It allows data on the health service to be transparently shared with patients, service providers and policy makers. The reporting of performance and outcome indicators is designed to enable policy makers and service providers to improve the quality of health service provision. Indicators are presented to allow for comparisons between regions, nationally, internationally and over time. The challenge for the audiences of this report is to ensure that the information presented here is used to improve the quality of our health service.

This 7th report continues the development of the NHQRS as a national public reporting system which focuses on the quality of care provided by our health services. This year's report, which covers two reporting cycles, includes NHQRS indicator data for 2020 and 2021 for the first time. It includes 43 indicators across five key domains. Updates to the report include the extension of existing indicators related to HPV vaccination (to include vaccination rates for boys) and patient reported experience of inpatient care during the pandemic. Two additional thematic chapters are also included in this year's report. To better understand how the pandemic impacted on the quality of our health services through the lens of the NHQRS indicators, a COVID-19 chapter is included. In line with a commitment in the Department's Women's Health Action Plan 2022-2023, a thematic chapter which puts a spotlight on the quality of care provided to women over their lifetime is also presented.

Since its emergence in early 2020, the COVID-19 pandemic has had a significant impact on health and social care services in Ireland and globally. The implementation of unprecedented measures to manage the COVID-19 pandemic response, the sustained allocation and redeployment of resources and operational supports, reconfiguration of healthcare systems to tackle service pressures and the rapid roll-out of vaccines all impacted emergency and routine care in 2020 and 2021. This was further complicated by the need to respond to the novel and evolving nature of the virus. Further evaluation of wider health information datasets will assist to fully assess the longer-term impact of the pandemic on patient outcomes. This area will continue to be considered in future cycles of the NHQRS report.

It is also important to remember that mid-2021 saw challenges in data collection and analysis due to the cyberattack which affected many of the healthcare ICT systems. While every attempt has been made by providers to collect and achieve high completion rates for this data, it is possible that some data gaps for this time period remain for some indicators.

Although NHQRS indicator data shows there were significant achievements and sustained improvements in 2020 and 2021, notable changes across indicators and areas for continued focus over the coming years were also highlighted. Achievements included reaching the influenza vaccination uptake target for those age 65 years and older for the first time in ten years, sustained improvements in cancer survival rates and the continued decrease in in-hospital mortality for ischaemic stroke and haemorrhagic stroke.

Notable changes in NHQRS indicator data included decreases in hospitalisation for COPD and asthma and antibiotic consumption in the community and in hospitals. Whilst these decreases are undoubtedly welcome, given the complexity of healthcare delivery during the pandemic, the reasons for these changes are likely to be multi-factorial. Future cycles of NHQRS are required to determine if these lower rates are maintained.

As in previous years, the report continues to put a spotlight on areas which require a continued focus in the coming years. Although NHQRS indicators linked to the Childhood and Schools Vaccination Programmes demonstrated resilience during the pandemic, uptake rates for MMR, MenC and HPV have remained below targets over a number of years. In response to patient reported experience, ensuring that information on the purpose of medicines to take at home is provided in a way that they can understand. In comparison to known international averages, the rate of chronic use of benzodiazepine medicines in those over 65 years of age, particularly in women requires further examination.

The NHQRS will continue to evolve on an iterative basis to ensure alignment with current and future policy on health and healthcare in Ireland. As work continues on the development of a Health System Performance Assessment Framework for Ireland, further consideration of how the NHQRS relates to this will be necessary in 2023.

Glossary

ACS	acute coronary syndrome
Age-sex standardised rate (ASR)	This allows the rate of an event in one hospital or country to be compared against the rate for that event in another hospital or country. It is the rate of hospitalisation for a particular condition, taking into account differences in age and sex.
AMI	acute myocardial infarction Arrhythmia: abnormal heart rhythm
CDI	*Clostridioides difficile* infection
C. difficile	*Clostridioides difficile*
CHO	Community Healthcare Organisation
CIDR	Computerised Infectious Disease Reporting
CMO	Chief Medical Officer
Co-morbidities	When there are two or more diseases existing at the same time in the body
COPD	chronic obstructive pulmonary disease
CPE	carbapenemase-producing *Enterobacteriaceae*
DCIS	ductal carcinoma in-situ
DDD	Defined Daily Dose
DID	Defined Daily Dose per 1000 inhabitants per day
Domain	a subset area of healthcare
EARS-net	European Antimicrobial Resistance Surveillance Network
GP	General Practitioner
HCAI	Health Care Associated Infection
HIPE	Hospital In-Patient Enquiry – A database that collects clinical and administrative information on patients each time they are discharged from a public hospital in Ireland.
HIQA	Health Information and Quality Authority
HPO	Healthcare Pricing Office
HPSC	Health Protection Surveillance Centre
HPV	human papilloma virus
HSE	Health Service Executive
ICD-10-AM/ ACHI	ICD-10-AM International Statistical Classification of Diseases and Related Health Problems, Tenth Revision - Australian Modification - Diagnoses classification in use for HIPE since 2005. ACHI – Australian Classification of Health Interventions - Procedures classification in use for HIPE since 2005.

KPI	key performance indicator
MenC	a vaccine against meningococcal subgroup C infection
MMR	a vaccine against measles, mumps and rubella infections
Morbidity	illness related to a specific condition or disease
Mortality	death related to a specific condition or disease
MRSA	methicillin resistant *Staphylococcus aureus*
MSSA	methicillin susceptible *Staphylococcus aureus*
NCEC	National Clinical Effectiveness Committee
NCRI	National Cancer Registry Ireland
NHS	National Health Service
NHQRS	National Healthcare Quality Reporting System
NIES	National Inpatient Experience Survey
NMES	National Maternity Experience Survey
NPSO	National Patient Safety Office
NPRS	National Perinatal Reporting System
OECD	Organisation for Economic Co-operation and Development. A group of countries that compares how each one is performing in areas such as health, employment and education.
PCRS	Primary Care Reimbursement Service
Prevalence	The proportion of the population who have a specific illness in a given time period
Principal diagnosis	The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code.
S. aureus	*Staphylococcus aureus*
Statistically significant	A result is said to be statistically significant when the chance of it being true is equal to or greater than 95 per cent.
STEMI	ST elevation myocardial infarction
WHO	World Health Organization
95% Confidence Interval	When a result has a high and low range attached, this range is called a confidence interval. There is a 95 per cent chance that the real result lies within this high and low range.

Chapter 1: The National Healthcare Quality Reporting System

This is the 7th report of the National Healthcare Quality Reporting System (NHQRS). This report makes publicly available information on the quality and safety of healthcare across the Irish health system. Its focus is on a balanced set of healthcare data that gives an overview of how our health service is performing compared to international health systems. This framework has built over time, and it is acknowledged that future editions will continue to incorporate measures of quality in the community and pre-hospital settings, as reliable and valid data becomes available.

The NHQRS provides the basis for a very important public discussion about the quality of health services in Ireland. It seeks to provide information of value to those who use our health services, work in our health services and to those who are tasked with developing health policy which aims to improve the quality of those services.

Previous years' reports are available to read, download and print from the Department of Health's webpages at: https://www.gov.ie/en/collection/5fd4f6-national-healthcare-quality-reporting-system-reports/#2020

This year's report is unique as it includes data for 2020 and 2021 for the first time and is therefore reflective of the healthcare system during the COVID-19 pandemic. The response required from health and social care services as the pandemic unfolded led to unprecedented interruption to much normal healthcare activity both within community and acute settings with significant reorganisation and refocusing of almost all health services, presenting considerable challenges to the continued delivery of healthcare. This should be considered when examining the 2020 and 2021 data presented throughout this report.

Background

To provide high quality safe care to patients, health services need to measure and monitor the quality of that care. Health services need to learn from practices of good quality care and improve quality if it falls below the expectations of patients, the public, policy makers and the service providers themselves. A number of countries have developed and put in place systems or frameworks to drive improvements in the quality and safety of healthcare. These systems are used to collect the required information to measure, monitor and publicly report on the performance of their health services. It is recognised that in healthcare, as in other areas, it is difficult to improve what cannot be, or is not, measured.

The importance of measuring and comparing performance in delivering quality healthcare outcomes between countries has also been recognised and facilitated by the establishment of international quality reporting systems, including the Organisation for Economic Co-operation and Development (OECD) Health Care Quality Outcomes. These systems allow for the measurement, monitoring and public reporting of the quality of healthcare at regional, national and international level. They empower patients and service users to make informed decisions about their healthcare, facilitate healthcare providers to improve their performance through benchmarking with other services, and they enable system-wide quality improvement by informing national policies.

In Ireland, significant amounts of health data are collected through a number of health information systems including the Hospital Inpatient Enquiry System (HIPE), the National Cancer Registry of Ireland (NCRI), the National Screening Service, Immunisation Uptake Statistics, Primary Care Reimbursement Service (PCRS) and the Computerised Infectious Disease Reporting (CIDR) system. Information on how patients and service users experience healthcare is being collected under the National Care Experience Programme. The National Inpatient Experience Survey (NIPES) asks patients about their experience in the acute hospital setting. The first maternity service experience survey took place in 2020. The programme is expanding into other health and social care setting including maternity bereavement, nursing homes and end of life care. These information sources are used in various ways to measure, monitor and report on many healthcare related activities and outcomes.

The Department of Health, with the establishment of the NHQRS, is committed to public reporting of information on the quality and safety of healthcare in Ireland. This is based on a commitment to openness, transparency,

improving accountability within the health system and on an understanding that such public reporting of information on performance will help drive improvements in the quality of the care delivered.

NHQRS monitoring and reporting

Monitoring the quality of healthcare includes measuring the performance of a service against a standard or expected level of performance. A reporting framework for the NHQRS has been developed that sets out in subsets (domains) the high level, patient-focused outcomes that a high-quality healthcare service should achieve. The selected indicators in these domains measure an aspect of care that contributes to the achievement of the domain. It is accepted that performance measurement contributes to improving the quality of healthcare.

This year's report covers two NHQRS reporting cycles and presents data, where available, to the end of 2021, and is therefore reflective of the healthcare delivery during the COVID-19 pandemic. Two additional thematic chapters are also included in this year's report to provide a COVID-19 lens and a women's health lens to NHQRS indicators.

A Health Systems Performance Assessment Framework for Ireland

The Health System Performance Assessment (HSPA) Framework is a measurement tool that has been developed to monitor Ireland's health system https://www.gov.ie/en/publication/6660a-health-system-performance-assessment-hspa-framework/. As witnessed over the past years on a global scale, Ireland's health care system has faced, and is still facing, numerous challenges. In addition, population growth and changing demographics will require system reform. The Framework will allow for the assessment of the performance of the health system with measurable and quantifiable outcome-based indicators which can be linked to relevant health policies and strategies. It will also enable the integration of policy and reform into an overall view of performance for the health system which will allow for better evidence informed health policy decisions.

Similar to Ireland, the HSPA is also becoming an essential assessment platform to many other countries. The European Union (EU) is currently assisting all EU member states in developing and adopting their own HSPA structures. In tandem, the World Health Organisation (WHO) is also encouraging the setting up and adoption of country specific HSPAs worldwide.

The HSPA Framework covers not only the traditional metrics of resources and workforce invested within the health sector of the country, but also focuses on; the equity and level of access to health services, affordability, the quality of the care provided, the efficiency of the health services, the information systems in place for better coordination and the level of continuity of health services.

Phase 2 of the project which focuses on the implementation of the Framework in the Health system is underway. As part of this work, a prototype visualisation tool for HSPA indicators is currently under development and it is expected to be released to the public in the coming months.

Users of This Report

Patients and the public can use this report to access health information about their county, their local health services, and the hospitals they attend. The report aims to present the information in user-friendly language. However, it is recognised that the language reflects the healthcare services being reviewed and therefore, it is not always possible to use language that is free from technical terms. An infographic accompanies the publication of this report with the aim of increasing interest in and understanding of the information contained in this report.

Health service providers should use this report to examine how their organisation or service is performing and allows comparison to other similar services. They should use this information in conjunction with other audit tools to assess their services' performance against that of similar services. This report should enable services to recognise areas of good practice and identify areas in need of quality improvement. To allow for comparison between similar services, information in this report is presented at regional, local health area, hospital group, hospital level and internationally where possible. This should assist health service providers in focusing on key areas where enhanced outcomes can be achieved. Reducing variation in healthcare provision has been shown to improve quality and safety. Therefore, healthcare providers should strive to reduce variability in practice in order to standardise care across the country.

Policy makers should use this report to compare performance of Irish health services with health services in other countries. The indicators are presented at national level with comparisons with international measures wherever

this information is available. This intelligence should be used to plan, monitor and drive service improvement at all levels within our healthcare system. Importantly, this information should also be used to support evidence-based policy making.

When examining a data report, variation as compared to other regions or previous years will become apparent. While it is universally acknowledged that variation in data can be attributed to differences in recording practices, the use of different definitions or even sheer chance, the data and variation should be used by service providers and policy makers to inform our strategies to improve healthcare.

The information provided in this report should be reviewed and examined by those tasked with the planning and delivery of healthcare; and/or the development of health policy locally, regionally, and nationally. This information is important to ensure safe quality healthcare in Ireland through a process of systematic, continuous quality improvement.

Intended Use of This Report

The indicators selected for this 7th NHQRS report reflect on the quality and performance of services across the health system, but it is important that what they tell us is not over interpreted. Differences can arise for a number of reasons. For example, issues like the quality of the data collected, differences due to patients attending one service being more unwell with more complex needs than those attending other services, or differences related to the quality of the service provided.

The appropriate response to any reported differences in indicators is for service providers to further examine and to explain the positive and negative findings. This will necessitate more in-depth analysis and evaluation, which may include consideration of other sources of local data. Following this, follow up actions as appropriate should to be taken.

It is also important to remember that one indicator alone should not be used to measure whether an organisation or service is safe and providing quality care. A single measure or indicator cannot capture all aspects of the quality of the healthcare provided. Therefore, indicators should not be used in isolation but rather used with other information to assess the quality of care being provided by a service or organisation.

To allow for international comparisons, the findings for all of the indicators are presented at national level and compared, where relevant and available, with international findings. For many of the indicators this means comparison with other countries in the Organisation for Economic Cooperation and Development (OECD) or other international patient surveys. Here it is also important to point out that there may be variation between countries in their coding practices, in the definitions used, and in the disease classification systems used.

These differences may affect data comparability between countries. For example, Ireland uses the disease classification system ICD-10-AM/ACHI whereas many other countries use ICD-9-based classifications.

The collection of data is not an endpoint. It is important that the surveillance of patient safety profiles for patients, services and clinical cohorts is part of the cyclical quality improvement process and overall approach to patient safety and quality care.

NHQRS Governance

The NHQRS and its governance structure is based in the National Patient Safety Office (NPSO) in the Department for Health. In 2016, a multi-agency committee was re-established to provide oversight and advice on the strategic direction of the NHQRS; to agree the selected indicators in line with international trends and health policy in Ireland; to agree definitions and metadata for the indicators; and to prepare and present a report to the Minister for Health. Governance Committee members facilitate communication between their own organisations in relation to the NHQRS processes and the report.

The committee is supported by a technical group. The role of the technical group is to provide expertise and experience in measuring and monitoring the quality of healthcare using performance measures or indicators. Secretariat to both governance committee and technical group is provided by the NPSO. The membership of the Governance Committee and Technical Group is included in appendix 1.

Chapter 2: National Healthcare Quality Reporting Framework

An indicator is a measurement or value of something. It is often used with the prefix performance, quality or health. An indicator can provide comparable information, as well as track progress and performance over time.

Indicators are generally used to describe measurement relating to healthcare system performance. For example: the Canadian Institute for Health Information (CIHI) define a health indicator as "a measure designed to summarize information about a given priority topic in population health or health system performance. Health indicators provide comparable and actionable information across different geographic, organizational or administrative boundaries and/or can track progress over time." [1].

A number of international health indicator frameworks are based around different themes or domains and often contain domains relating to healthcare quality, sometimes with subdomains and/or themes. Examples of terms used to describe these domains and/or themes are: healthcare system performance, access to care, patient safety, quality of care, appropriateness and effectiveness, efficiency, person-centeredness, responsiveness.

In the NHQRS, the Irish health indicator framework, it is important to describe high level, patient focused outcomes that a high-quality healthcare service should deliver. These outcomes are described as quality domains. These domains and dimensions of quality are informed by international evidence of what quality healthcare looks like, as well as the description given in the HIQA National Standards for Safer Better Healthcare 2012 [2].

The NHQRS five domains and indicators were informed by outcomes used in reporting systems in other jurisdictions including the National Health Service (NHS) Outcomes Framework [3], the Agency for Healthcare Research and Quality (AHRQ) [4], the Swedish Regional Comparisons [5], and also the OECD framework for health system performance assessment [6].

Domains of the National Healthcare Quality Reporting System

- Domain 1: Helping people to stay healthy and well
- Domain 2: Supporting people with long term conditions
- Domain 3: Helping people when they are being treated and cared for in our health services
- Domain 4: Supporting people to have positive experiences of healthcare
- Domain 5: Treating and caring for people in a safe environment

Evaluation and selection of indicators

To safeguard the integrity and validity of the NHQRS, the committee agreed a procedure for the selection of new indicators for inclusion in this report. In addition, a transparent screening exercise facilitates consideration of those indicators to be retained or de-selected in future editions of the NHQRS. This exercise will allow for the identification of gaps and will ensure that the NHQRS reflects developments in our health system over time.

The criteria for the inclusion of indicators for the 2021/2022 report were:

- a focus on patient outcomes, patient safety and patient care
- availability of data in the Irish health system
- alignment to international indicators to allow for international comparison
- face validity of each indicator, i.e. sound clinical or scientific rationale for its use and measurement of an important aspect of quality that may be within the control of the provider or healthcare system
- importance to patients
- contribution to service improvement and cost efficiencies
- alignment with the domains of the NHQRS framework
- alignment with current/future policy on health and healthcare in Ireland.

In addition, all indicators are evaluated for the quality of the data available. This evaluation process is informed by HIQA's Guidance on a data quality framework for health and social care.

Domains and indicators

It must be acknowledged that the NHQRS will evolve over time as more high-quality information is collected and as it becomes more embedded in the health system. So too, it is envisaged that the number and type of indicators selected will continuously evolve. The 43 included indicators are grouped under 5 quality domains.

Indicators in the Report

DOMAIN	INDICATOR
1. **Helping people to stay healthy and well**	**Immunisation rates** • Immunisation rate for measles, mumps, rubella (MMR) vaccine • Immunisation rate for meningitis C (MenC) vaccine • Immunisation rate against influenza for persons aged 65 and older • Immunisation rate against influenza among healthcare workers in hospitals • Immunisation rate for human papillomavirus (HPV) vaccine **Cancer screening rates** • Screening rate for breast cancer • Screening rate for cervical cancer • Screening rate for colorectal cancer
2. **Supporting people with long term conditions**	**Ambulatory care sensitive conditions** • Chronic obstructive pulmonary disease (COPD) hospitalisation rates • Asthma hospitalisation rates • Diabetes hospitalisation rates • Heart failure hospitalisation rates
3. **Helping people when they are being treated and cared for in our health services**	**Cancer survival rates** • Breast cancer survival rates • Cervical cancer survival rates • Colorectal cancer survival rates • Lung cancer survival rates **Cancer surgery** • Breast cancer surgical activity • Colon cancer surgical activity • Rectal cancer surgical activity **Acute hospital care** • In-hospital mortality within 30 days of admission for acute myocardial infarction (AMI)/heart attack • Stroke admissions to hospitals with stroke units • In-hospital mortality within 30 days of admission for haemorrhagic stroke • In-hospital mortality within 30 days of admission for ischaemic stroke • In-hospital waiting time for hip fracture surgery • Caesarean section rates

DOMAIN	INDICATOR
4. **Supporting people to have positive experiences of healthcare**	**National In-Patient Experience Survey** • Overall rating of inpatient experience • Communication in emergency department • Pain control on the ward • Emotional support provided on the ward • Patient involvement in decision making regarding care • Communication regarding continuing medicines at patient discharge • Dignity and respect while in hospital • Feeling at risk of catching COVID-19 • Communication with staff wearing Personal Protective Equipment • Answers to questions regarding COVID-19 • Help to keep in touch with family • Emotional support regarding COVID-19 worries and fears
5. **Treating and caring for people in a safe environment**	**Healthcare associated infection rates** • *Staphylococcus aureus* and methicillin susceptible *Staphylococcus aureus* (MSSA) bloodstream infection rates • *Clostridioides difficile (C. difficile)* infection rates • Carbapenemase-producing *Enterobacteriales* **Antibiotic consumption rates** • Antibiotic consumption in the community • Antibiotic consumption in public acute hospitals **Medication Safety** • Chronic benzodiazepine usage in the community in people aged 65 years and over

Indicators by domain and their data sources

	INDICATORS	HPSC	OECD	NSS	HIPE	NCRI	NPRS	EARS-Net	ES-AC-Net	NIES	PCRS
DOMAIN 1	Immunisation rate for MMR vaccine	•									
	Immunisation rate for MenC vaccine	•									
	Immunisation rate against influenza for persons aged 65 and older	•	•								
	Immunisation rate against influenza among healthcare workers in hospitals	•									
	Immunisation rate for human papillomavirus (HPV) vaccine	•									
	Screening rate for breast cancer		•	•							
	Screening rate for cervical cancer		•	•							
	Screening rate for colorectal cancer		•	•							
DOMAIN 2	COPD hospitalisation rates		•		•						
	Asthma hospitalisation rates		•		•						
	Diabetes hospitalisation rates		•		•						
	Heart failure hospitalisation rates		•		•						
DOMAIN 3	Breast cancer survival rates		•			•					
	Cervical cancer survival rates		•			•					
	Colorectal cancer survival rates		•			•					
	Lung cancer survival rates		•			•					
	Breast cancer surgical activity				•						
	Colon cancer surgical activity				•						
	Rectal cancer surgical activity				•						
	In-hospital mortality within 30 days of admission for AMI		•		•						
	Stroke admissions to hospitals with stroke units				•						
	In-hospital mortality within 30 days of admission for haemorrhagic stroke		•		•						
	In-hospital mortality within 30 days of admission for ischaemic stroke		•		•						
	In-hospital waiting time for hip fracture surgery		•		•						
	Caesarean section rates		•				•				

	INDICATORS	HPSC	OECD	NSS	HIPE	NCRI	NPRS	EARS-Net	ES-AC-Net	NIES	PCRS
DOMAIN 4	Overall Rating of inpatient experience									•	
	Inpatient involvement in decision making regarding care									•	
	Emotional support provided on the ward									•	
	Pain control on the ward									•	
	Communication regarding continuing medicines at patient discharge									•	
	Dignity and respect while in hospital									•	
	Communication in emergency department									•	
	Feeling at risk of catching COVID-19									•	
	Communication with staff wearing Personal Protective Equipment									•	
	Answers to questions regarding COVID-19									•	
	Help to keep in touch with family									•	
	Emotional support regarding COVID-19 worries and fears									•	
DOMAIN 5	Methicillin resistant *Staphylococcal Aureus* (MRSA) rates	•						•			
	Clostridioides difficile (C. difficile) rates	•									
	Carbapenemase-producing *Enterobacteriales*	•									
	Antibiotic consumption in the community	•							•		
	Antibiotic consumption in public acute hospitals	•									
	Chronic benzodiazepine usage in the community in people aged 65 years and over		•								•

Sources of data

The analysis and commentary presented in this report was carried out by the Department of Health with assistance from various agencies. Data was accessed through the following sources:

National Screening Service (NSS)
The NSS encompasses BreastCheck - The National Breast Screening Programme, CervicalCheck - The National Cervical Screening Programme, BowelScreen – The National Bowel Screening Programme and Diabetic RetinaScreen – The National Diabetic Retinal Screening Programme.

National Cancer Registry of Ireland (NCRI)
The NCRI is a publicly appointed body, established to collect and classify information on all cancer cases which occur in Ireland.

Health Protection Surveillance Centre (HPSC)
The HPSC is Ireland's specialist agency for the surveillance of communicable diseases. This involves collecting data, collating it, analysing it and communicating information to those who need to know.

National Perinatal Reporting System (NPRS) managed by the Healthcare Pricing Office
The NPRS is the principal source of national data on perinatal events. Information on every birth in the Republic of Ireland is submitted to the NPRS by trained hospital administrative staff and all practicing independent midwives. The time frame to which the information relates is from 22 weeks gestation to the first week of life.

Hospital In-Patient Enquiry (HIPE) managed by the Healthcare Pricing Office
The HIPE database collects clinical and administrative information on patients each time they are discharged from a public hospital in Ireland. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease.

OECD Health Statistics
The OECD Health Database offers the most comprehensive source of comparable statistics on health and health systems across OECD countries. It is used to carry out comparative analyses and draw lessons from international comparisons of diverse health systems.

The European Antimicrobial Resistance Surveillance Network (EARS-Net)
EARS-Net is the largest publicly funded system for antimicrobial resistance (AMR) surveillance in Europe. Data from EARS-Net plays an important role in raising awareness at the political level, among public health officials, in the scientific community and among the general public. It is managed and coordinated by the European Centre for Disease Prevention and Control (ECDC).

The European Surveillance of Antimicrobial Consumption Network (ESAC-Net)
ESAC-Net is a Europe-wide network of national surveillance systems, providing European reference data on antimicrobial consumption. ESAC-Net collects and analyses data on antimicrobial consumption from EU and EEA/EFTA countries, both in the community and in the hospital sector. It is managed and coordinated by the European Centre for Disease Prevention and Control (ECDC).

National Inpatient Experience Survey (NIES)
The National Inpatient Experience Survey is a nationwide survey asking adult patients for feedback about their stay in acute hospital. The survey is part of the broader National Care Experience Programme (NCEP) to help improve the quality and safety of healthcare services in Ireland. The NCEP is a tripartite partnership of the Health Information and Quality Authority (HIQA), the Health Service Executive (HSE) and the Department of Health.

Primary Care Reimbursement Service (PCRS)
The PCRS is part of the HSE, and is responsible for making payments to healthcare professionals, like GPs, dentists and pharmacists, for the free or reduced costs services they provide to the public. In addition to the processing and making of payments on a national basis to key customers, the PCRS compiles statistics and trend analyses which are provided to other areas within the HSE, the Government, customers, stakeholders and to members of the public.

Presentation and analysis of data

Each of the indicators included in this report sets out to provide certain information. The indicators are presented as a national trend, usually as a ten-year trend where possible. This gives a sense of the national picture. The source of data and information for each of the indicators is provided. Where the data is available, the indicators are also presented at regional and/or local and, where appropriate, hospital level, to give a clear picture of regional and local variation.

Data is presented by HSE Area of Residence, Local Health Office or Community Health Organisation (CHO) for a number of indicators. It should be noted that the Local Health Office structure was replaced in 2014 by nine Community Healthcare Organisations (CHOs).

It should be noted that for the mortality indicator (heart attack and stroke) age and sex were taken into account in the analysis so that they can be compared with the national average. As part of this age-sex standardisation adjustment, 95% confidence limits were calculated. If these resulting confidence intervals are outside the expected range, they are statistically significantly different, and this requires further exploration to determine the reason behind this variation.

The fact that a rate is statistically significantly different does not necessarily mean that there is a difference in the quality of care provided, either good or bad. Rather, it indicates that the rate is different from what would have been expected and the reasons for this should be examined further by those tasked with providing that health service.

The OECD uses the direct standardised death rate as the basis for its methodological approach. The reference population is based on the age and gender profile of the OECD 2010 population admitted to hospital with selected conditions. This allows direct comparison between OECD member states and is of greatest value when used to compare practice across international boundaries. The same methodological approach is taken in this report and this allows for the comparison of individual indicators between Ireland and other OECD countries.

An alternative method which can be used in the analysis of in-hospital mortality is the standardised mortality ratio (SMR), an approach which allows for adjustment for differences in population characteristics. This methodology is used in the National Audit of Hospital Mortality report produced by the National Office of Clinical Audit (NOCA), where adjustment is made for 8 variables (age, sex, pre-existing illness, previous emergency admission within 12 months, source of admission, type of admission, in-hospital palliative care and deprivation indicator (defined as access of services via the General Medical Services (GMS) Scheme, also known as the medical card)). A key difference between this methodology and that used in this report is that the SMR allows individual hospitals to compare their observed deaths against the deaths that would be expected in that hospital when those variables affecting mortality are taken into consideration. Standardised mortality ratios do not allow comparisons to be made between hospitals as no two hospitals will have the same patient profile. However, they do allow for hospitals, irrespective of their size, to be standardised to allow comparison against a national average. Due to the differences in methodology it is not possible to compare in-hospital mortality indicators in the NHQRS against those reported in the NOCA National Audit of Hospital Mortality Report. Both should be used by health service providers to assess the quality of care provided within that service.

Additional technical information is presented in the metadata sheets. These present information about each indicator in tabular standardised format. Readers may refer there for more detailed definition, methodology and notes as relevant. The relevant National Clinical Programmes and data providers were contacted during the preparation of this report. The contribution from the various agencies has proven invaluable in defining the purpose of, and context for, the information included. This allows for better understanding of the data and should ensure responsible use of the information.

References

[1] Canadian Institute for Health Information, "Health indicators," [Online]. Available: https://www.cihi.ca/en/access-data-and-reports/indicators/health-indicators.
[2] Health Information and Quality Authority, "National Standards for Safer and Better Health Care," Health Information and Quality Authority, Dublin, 2012.
[3] Department of Health, "The NHS Outcomes Framework 2015/16," United Kingdom: Department of Health, 2014.
[4] Agency for Healthcare Research and Quality, "Quality Indicators," 2015.
[5] Swedish National Board of Health and Welfare, "Quality and Efficiency in Swedish Health Care – Regional Comparisons 2012.," Swedish Association of Local Authorities and Regions, Swedish National Board of Health and Welfare , Sweden, 2013.
[6] E. Kelley and J. Hurst, "OECD Health working papers no. 23, Health care quality indicators project, conceptual framework paper," Organisation for Economic Co-operation and Development, 2006., 2006.

Chapter 3: Thematic Chapter - COVID-19 lens on NHQRS Indicators

Introduction

Since its emergence in early 2020, the COVID-19 pandemic has had an unprecedented impact on health and social care services in Ireland and globally, with a particular impact on the elderly and vulnerable people with underlying health conditions. The last NHQRS Annual Report (2020, published in January 2021) included indicator data up to the end of 2019. This year's Report includes indicator data for 2020 and 2021 (where available) and is therefore reflective of the healthcare system during the COVID-19 pandemic. The purpose of this thematic chapter is to provide a COVID-19 lens on NHQRS quality indicators. It also includes some high level COVID-19 data to provide context for examining changes in NHQRS data.

This chapter is not intended to examine how Ireland responded to the pandemic or the impact of COVID-19 on wider health and social care services but rather to reflect upon the impact of COVID-19 in relation to NHQRS quality indicators and describe changes observed in relation to NHQRS data in 2020 and 2021. It is not possible to capture or explain all the effects the pandemic may have had on the indicators, but an attempt is made to capture the context. Furthermore, it should also be noted that it will be necessary to continue to track NHQRS indictors over the medium term to comprehensively capture the impact of COVID-19 on the quality of healthcare in Ireland.

Reports which include more detailed analysis of the direct and indirect impact of COVID-19 on the Irish health and social care system are available from various sources including the Department of Health, the HSE, the Health Protection Surveillance Centre, the Healthcare Pricing Office, the National Centre for Clinical Audit and the Central Statistics Office. This will continue to be an area for ongoing research and analysis over the longer term as some impacts of the pandemic will not become evident for a number of years.

Direct impact of COVID-19 on the Healthcare System

The declaration of COVID-19 as a public health emergency of international concern by the World Health Organization in January 2020 heralded the start of the global pandemic. The response required from health and social care services as the pandemic unfolded in Ireland led to unprecedented interruption to much normal healthcare activity both within community and acute settings.

COVID-19 required significant reorganisation and refocusing of almost all health services, presenting considerable challenges to the continued delivery of healthcare, particularly during surges of COVID-19. The response by the health service included creating entirely new COVID-19 services, most notably standing up a national population COVID-19 vaccination service, while simultaneously protecting a very broad range of urgent, time critical care services, along with many routine services.

During the waves in COVID-19 throughout 2020 and 2021, high case numbers were seen across the country which led to additional and sustained pressure on health services and resulted in the curtailment of the delivery of scheduled care to cope with rising numbers of covid patients. During these waves of COVID-19, large numbers of patients required admission to an acute hospital for care with a particular increase in the demand on ICU and HDU beds at these times.

As a result of this increased pressure on services and staff, some services that were deemed non-essential, where demand was reduced, or those where it was not safe or possible for them to be delivered, were curtailed and staff redeployed to meet the demands of the pandemic response. These services were returned in a safe and phased approach over 2020 and early 2021.

Central to this phased return to delivery of services was the implementation of strict infection prevention and control procedures across services along with social distancing measures. This in turn meant reduced capacity in the health services, which, along with pressures on staffing levels due to redeployment and self-isolation requirements, saw COVID-19 impacting directly on service provision across 2020 and 2021.

As a result of these direct impacts of COVID-19 on the health and social care service, hospital activity in both 2020[1] and 2021 was extensively affected. Behavioural change among the public as a result of fear and healthcare avoidance, particularly during the early months of the pandemic, may also have impacted on attendance during this time. For patients with other illnesses and injuries who continued to present to hospitals, there were significant challenges to well-established pathways of care. Many patient groups were diverted to other facilities. [1] As a result of this, the HSE entered into a Service Level Agreement (known as Safety Net) with private hospitals to allow some public patients (including elective surgeries) to be treated in private hospitals during 2020 and 2021 [2].

On a population level in response to the pandemic, a range of measures were introduced at different stages over 2020 and 2021 to minimise the community spread of COVID-19 and reduce the impact on health services. Such public health measures included those in relation to mass gatherings, the closure of non-essential outlets and services, restrictions on home visits, stay at home measures and advice to work from home. Cocooning was also recommended for those over 70 years of age and specified categories of people considered extremely medically vulnerable to COVID-19.

The COVID-19 Vaccination Programme is the largest immunisation programme in the history of the State with more than 9 million doses having been administered across all programmes in 2021. The rollout of COVID 19 vaccines in 2021 had a dramatic impact on rates of hospitalisation and ICU admissions, severe disease, and mortality due to COVID-19, particularly in the older and vulnerable population groups. The success of Ireland's COVID-19 Vaccination Programme was a turning point in the pandemic and a key enabler in the gradual unwinding of public health measures and the substantial resumption of economic and social life.

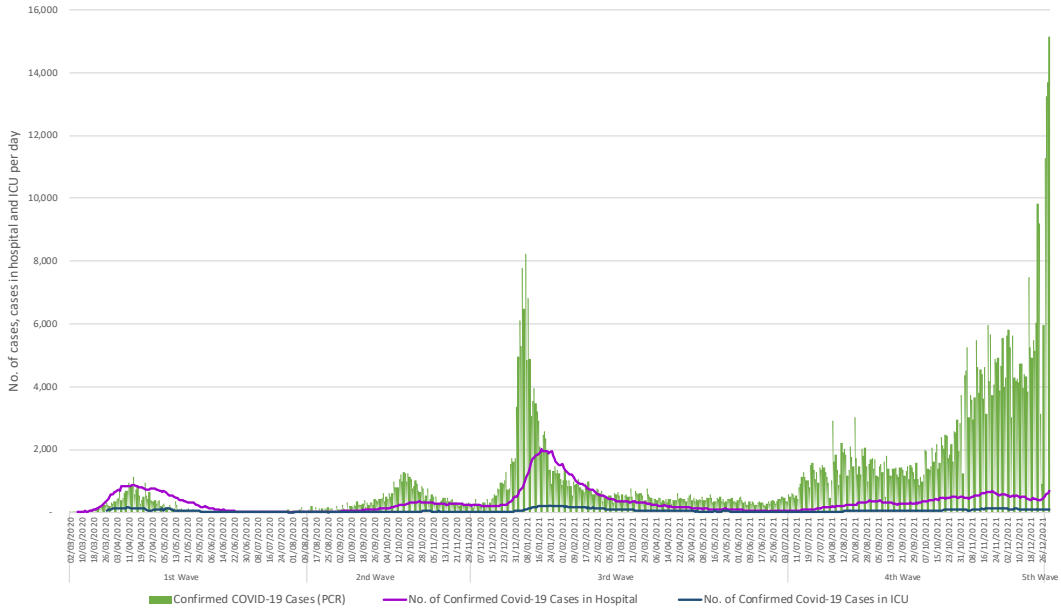
The data presented below reflects this direct impact of COVID-19 in respect of the rate of hospitalisation and ICU admissions and the progress of the COVID-19 vaccination programme across 2020 and 2021.

Commentary:

- Figure CV.1 provides an overview of the number of new COVID-19 confirmed cases per day, the number of confirmed cases in hospital and the number of confirmed cases in ICU across the four pandemic waves from March 2020 to December 2021. The highest peak in numbers of COVID-19 patients in ICU was in January 2021.
- Figure CV.2 provides an overview of the rate of hospitalisation and ICU admission by age and sex and compares 2020 and 2021. There was a higher hospitalisation rate in 2021 than 2020 and hospitalisation was higher among men in most age groups (the age groups where hospitalisation is higher for women is influenced by maternity admissions). For ICU admission of COVID-19 cases the highest rate is among those aged 65-74 years.
- Figure CV.3 provides an overview of the progress of the COVID-19 vaccination programme during 2021 with the percentage of the population in each age group[2] who were fully vaccinated by week. By the end of 2021, Ireland reported that 78% of the eligible population were fully vaccinated. This compared favourably with other European countries (6th highest out of 38 countries).
- Ireland's COVID-19 Vaccination Programme experienced among the highest levels of uptake across Europe, with more than 94% of adults having received a full primary vaccination regimen by the end of 2021.

1 In 2020, total discharges (inpatient and day case) fell over 14%, and ED attendances fell over 15% [5].
2 5–11-year-olds are not included as they only became eligible for vaccination in January 2022

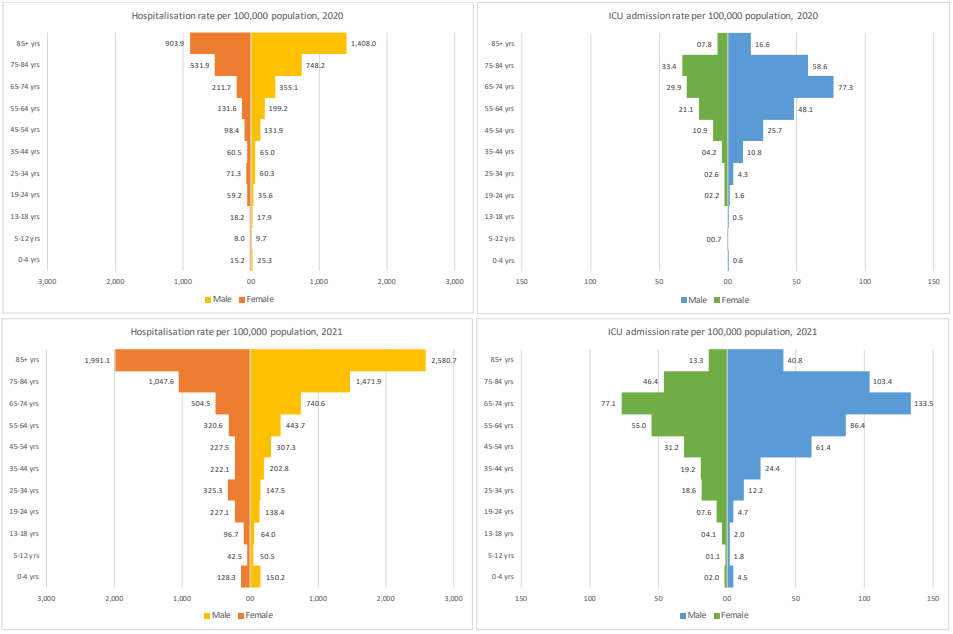
Figure CV.1: Number of new COVID-19 confirmed cases (PCR), number of confirmed COVID-19 cases in hospital and in critical care per day, March 2020-December 2021



Source: Health Protection Surveillance Centre (HPSC), Special Delivery Unit (SDU) of the Health Service Executive, National Office of Clinical Audit (NOCA)

Notes:
(i) Data on confirmed cases of COVID-19 is based on newly notified confirmed cases on the national Computerised Infectious Disease Reporting (CIDR) system by event creation date on CIDR.
(ii) Data on confirmed cases in hospital is based on data submitted to the Special Delivery Unit (SDU) by 29 acute public hospitals at 08.00 each day.
(iii) Data on confirmed cases in critical care based on data collected each day at 11.30 by NOCA through the Intensive Care Unit - Bed Information System (ICU-BIS) on cases in Intensive Care Units and High Dependency Units in 28 public acute hospitals and 5 private hospitals.
(iv) Changes in testing capacity, public health policy and case classification impact on the ascertainment of cases over time. It should be noted that reported case numbers for Wave 1 in particular is likely to be an underestimate.

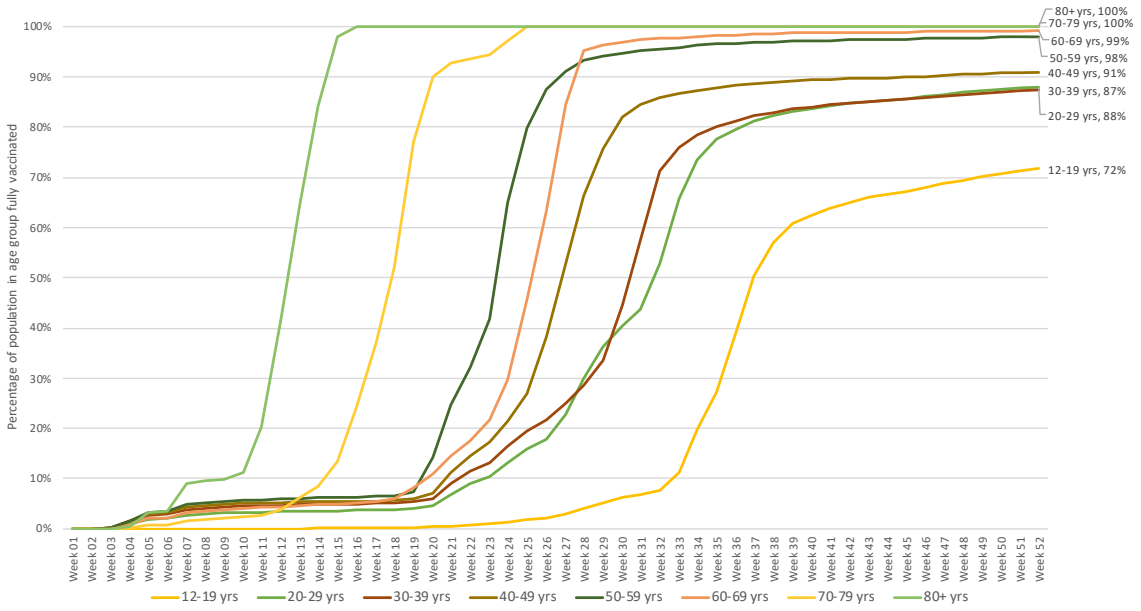
Figure CV.2: COVID-19 Hospitalisation rate and ICU admission rate per 100,000 population by age group and sex, 2020-2021



Source: Health Protection Surveillance Centre (HPSC)

Note:
Data sourced from national Computerised Infectious Disease Reporting (CIDR) system. Data includes all confirmed COVID-19 cases notified to CIDR on or before 31 December 2021 where Patient Type = 'Hospital Inpatient' (for hospitalisation rate) and where Admitted to ICU = 'Yes' (for ICU admission). Population based on CSO Population Estimates for April 2020 and April 2021.

Figure CV.3: Percentage of population (12+ years) in each age group who are fully vaccinated by week, 2021



Source: Health Service Executive (HSE)

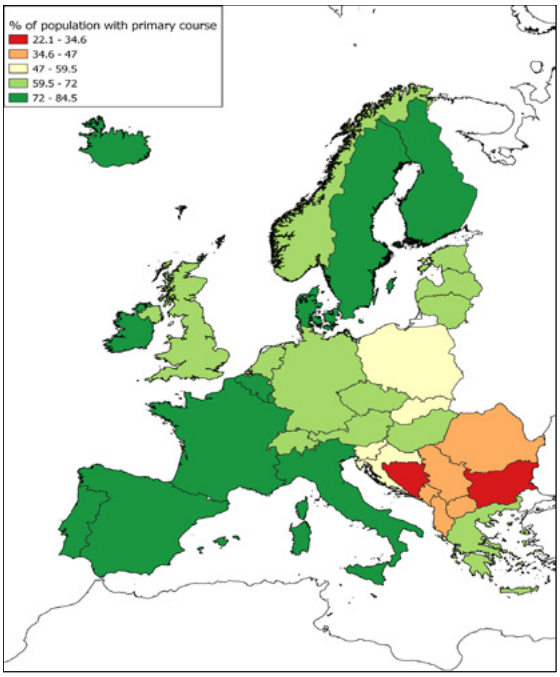
Notes:

(i) Data includes COVID-19 vaccinations delivered through vaccination centres, GP practices, pharmacies and other settings (e.g. nursing homes, hospitals). This involves integration and linking of data from a number of different IT systems. Vaccination data is subject to ongoing data validation and data quality checks and may be revised and updated as a result.

(ii) 'Fully vaccinated' refers to people who have received a second dose of a vaccine which requires two doses and also people who have received a single dose of a vaccine requiring only one dose. People are assigned to 'fully vaccinated' on the date they receive their second dose (or single dose). As many 60–69-year-olds got the AstraZeneca vaccine, which had a longer period between doses, it took longer to reach fully vaccinated.

(iii) The population in each age group is sourced from the CSO's April 2021 population estimates. The percentage uptake by age group should be interpreted as an estimate. For example, the number of persons who have received a vaccine only includes those who have been vaccinated in the state and would not include Irish residents who may have been vaccinated outside of the state e.g. in Northern Ireland. Further, the denominator used to calculate the percentages is a population estimate, this may lead to a slight underrepresentation or overrepresentation of the number of people vaccinated in a given age group.

Figure CV.4 Percentage of eligible population of European countries fully vaccinated with primary course as at 31 December 2021



Source: Our World in Data https://ourworldindata.org/covid-vaccinations

Indirect impact of COVID-19 across NHQRS indicators

As outlined above, the impact of COVID-19 on health and social care services was profound throughout both 2020 and 2021. These two years of unprecedented change in the Irish health service can be seen across many of the NHQRS domains.

This section of the NHQRS seeks to provide a discursive overview of the changes observed in NHQRS data indicators from the previous NHQRS report to this report, linking the reader to the relevant data and detailed information in the body of the report, including the charts, tables and maps. This analysis is primarily based on a comparison of 2019 data (pre-pandemic) with 2020 and 2021 data (during the pandemic).

The comparison is based on national data only rather than international comparisons. The reason for this is that many of the international data charts include returns from different time periods - both pre and during the pandemic.

In addition to effects on healthcare delivery, the pandemic also affected data collection and analysis systems. This directly affects the data available for the NHQRS indicators on care experience as the National In-Patient Experience Survey was not conducted in 2020.

Domain 1: Helping people to stay healthy and well

Immunisation programmes

Domain 1 includes indicators in relation to a range of vaccinations including the HSE Child Immunisation Programme in respect of MMR and Men C immunisation, the HSE School Immunisation Programme in respect of HPV vaccination and the Influenza Programme.

Regarding childhood vaccinations, there was a slight increase in the uptake for MMR at 24 months between 2019 and 2020, however this decreased marginally in 2021 (see Figure 1.1). The Men C immunisation rate showed a slight decrease in both 2020 and 2021 compared to 2019 figures (see Figure 1.3). Of note, GPs and their practice nurses involved in the delivery of this programme have been heavily involved in COVID-19 related work dealing with both work related to infections and COVID-19 vaccination roll out. Ongoing investigation is necessary to identify if this was a factor in the decrease in the vaccination uptake rates seen in 2021 and observation of these indicators in future cycles of the NHQRS will determine if this trend continues.

Influenza vaccination rates for persons aged over 65 years and older increased notably for 2021/2020 and again in 2021/2022 (see Figure 1.5). For healthcare workers this rate increased in 2020/2021 but declined again in 2021/2022 (see Figure 1.7). As noted above, the roll out of the primary COVID-19 vaccination was a remarkable success and the increases seen in influenza vaccination uptake, particularly in the general population over 65 years and older may well be due to the increased public awareness of the benefits of vaccination coupled with the opportunity for people to get their flu vaccination and COVID-19 booster at the same time.

Human papillomavirus (HPV) vaccination rates form part of the HSE School Immunisation Programme and the NHQRS data in this regard fluctuated across the 2020-2021 (see Figure 1.9). The continued delivery of school immunisations was challenged during the pandemic with school closures and a lack of suitable space with appropriate social distancing to deliver vaccines once schools reopened. There were also challenges to entering the vaccination records into the database as a result of staff redeployment (e.g., to COVID-19 testing and COVID-19 vaccination work) and further investigation is required to understand the full impact of these factors on the uptake rates for 2020/2021.

Cancer screening

NHQRS indicators for cancer screening include screening for breast cancer, bowel cancer and cervical cancer. These services were paused in March 2020 with a phased restart of services from July 2020 onwards.

The availability of NHQRS indicator data for cancer screening during 2020 and 2021 is limited. In 2020, the breast cancer screening uptake rate remained above the 70% target (see Figure 1.11) whereas the colorectal screening uptake rate among the eligible population decreased slightly in comparison to 2019 (see Figure 1.17). Cervical screening data from March 2020 onwards is not yet available.

While the early data available for colorectal cancer screening would be suggest that COVID-19 may have played some role in impacting the screening rate, future cycles of NHQRS with data for 2020 and 2021 across all screening services included in NHQRS will be necessary to determine the impact of COVID-19 on screening uptake during the pandemic.

Domain 2: Supporting people with long term conditions

Chronic disease age-sex standardised hospitalisation rate per 100,000 population

Hospitalisation for chronic obstructive pulmonary disease (COPD) (see Figure 2.1) and asthma (see Figure 2.4) decreased between 2019 and 2021, while diabetes (see Figure 2.7) and heart failure (see Figure 2.10) hospitalisation rates decreased in 2020 but increased to pre-pandemic levels in 2021.

The notable decreases in rates of hospitalisation for COPD and asthma in 2020 and 2021 may have been due to many factors including people cocooning, less respiratory infections circulating, people not presenting to hospital or primary care interventions linked to enhanced community care[3].

Whilst the decreases in hospitalisation rates for COPD and asthma over the last 2 years are undoubtedly welcome, future cycles of NHQRS are required to determine if these lower rates are maintained, and further investigation and research in this area will enable a better understanding of the full impact of pandemic on hospitalisation rates for all chronic diseases.

Domain 3: Helping people when they are being treated and cared for in our health services

Cancer survival and cancer surgical procedures

NHQRS data in this domain reports both cancer surgical procedures and cancer survival. The latest available data regarding cancer survival extends to patient cohorts diagnosed in 2014 to 2018, therefore it is too early to be able to report on the impact of the COVID-19 pandemic.

The number of breast (see Figure 3.10), colon (see Figure 3.11) and rectal (see Figure 3.12) cancer surgical procedures and the proportion of these undertaken in designated cancer centres are reported under this domain. For all three, total case numbers decreased in 2020 and increased again in 2021. The proportion undertaken in designated cancer centres was variable across the three cancers and across 2020 and 2021.

The impact of COVID-19 on surgical oncology was variable across 2020 and 2021. From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 inpatients. As a result of this, the HSE entered into a Service Level Agreement (known as 'Safety Net') with private hospitals to allow some public patients (including elective surgeries) to be treated in private hospitals for the duration of the COVID-19 pandemic. [2].

The treatment of some public patients for surgical oncology in private hospitals was not recorded on HIPE and is not presented here for the year 2020 and likely accounts for some of the decreases seen in overall case numbers. However, the Healthcare Pricing Office has received some limited information on discharges of public patients from private hospitals who were treated under the iterations of the 'Safety Net' agreements that were in place from 2021 onwards. It should be noted that this data is incomplete and has not undergone the rigorous quality

3 Reflecting the need to shift the majority of chronic disease care into the community, the Integrated Model of Care for the Prevention and Management of Chronic Disease continues to be rolled out nationally as part of the Enhanced Community Care Programme. The Chronic Disease Management (CDM) Programme, which is part of the Integrated Model of Care, commenced implementation in January 2020. As of 11th September 2021, there were 166,147 patients registered on the CDM system. [6]

checks that apply to HIPE data and is therefore not directly comparable with HIPE data and must be interpreted with caution. Based on this information approximately 260 breast, colon and rectal cancer surgeries were carried out in private hospitals during 2021 under this agreement.

In-hospital mortality - age-sex standardised in-hospital mortality rates within 30 days of admission (OECD age-sex standardisation, aged 45+ only)

In-hospital mortality for both types of stroke decreased over the three years from 2019 to 2021 (see Figure 3.17 and Figure 3.20) while the proportion of stroke admissions to a hospital with a stroke unit remained above 80% during this time (see Figure 3.16). However, in-hospital mortality for acute myocardial infarction (AMI) increased across both years (see Figure 3.13).

The HSE COVID-19 pandemic impact paper in 2021 reported that overall stroke management improved during the period of the pandemic which is reflective in the NHQRS data. This is despite the challenges the pandemic presented to acute stroke care with the reconfiguration of the bed base for infection control and redeployment of specialist stroke staff as part of the crisis response. Initial audit data suggested a public behavioural change, with patients presenting later to hospital after onset of symptoms, but faster door to doctor times in ED, and shorter lengths of stay in stroke unit beds [3].

Hip Fracture surgery within two days of admission (aged 65 years and older)

While the total percentage of hip fracture surgeries performed within two days of admission decreased in 2020, it increased again in 2021 (see Figure 3.23). Throughout the pandemic, the pathway of care was disturbed and there was significant staff redeployment. The Safety Net agreement described above also impacted upon the management of hip fractures during COVID-19 with a proportion of public hip fracture patients reported to have been treated in a private hospital. [4]

Caesarean section rate – deliveries per 100 live births

The final NHQRS indicator in this domain related to caesarean section rates. The latest available data for this extends to 2020 which showed an increase from 2019, however this rate has increased annually for over a decade (see Figure 3.26). Further cycles of NHQRS will be required to determine if this increasing rate is sustained into 2021 and to better assess if COVID-19 impacted the rates during the pandemic.

Domain 4: Supporting people to have positive experiences of healthcare

The 2020 National Inpatient Experience Survey was cancelled in May 2020 due to the additional demands placed on the health service during the COVID-19 pandemic. The survey was run again in 2021 but due to the cyberattack on HSE IT systems, it was necessary to move the survey month from May to September. New questions on COVID-19 were included providing a unique opportunity to understand the patient experience during the pandemic.

The response rate to the survey in 2021 continued to be high based on international comparisons of such surveys and the majority of respondents reported a positive overall experience in hospital which is similar to before the pandemic. The additional COVID-19 questions in the survey have been included in the 2022 National Inpatient Experience Survey and this continuous collection of data will be important to understanding patients experiences in respect of COVID-19 in future NHQRS cycles. (see Domain 4 patient experience data).

Domain 5

Healthcare associated infection rates:

The management of healthcare associated infections (HCAIs) is critical to patient care and this was no less so during the pandemic. From the HCAI indicators in the NHQRS, there was minimal change noted in the infection rates, however much of the data does not extend into 2021 (see Figure 5.1, Figure 5.3 and Figure 5.4).

The specific risks of HCAI differ with the setting in which healthcare is delivered, however the basic principles of effective infection prevention control (IPC) apply regardless of the setting. Strict IPC measures were implemented

across the health services in response to COVID-19 and public awareness of the importance of such measures is likely to have increased as a result of the pandemic. Ongoing monitoring of the NHQRS HCAI indicators through 2021 and beyond will assist in understanding the impact of COVID-19 on this domain.

Antibiotic consumption rates

Antibiotic consumption rates measured in the NHQRS indicators decreased from 2019 to 2021 both in community and public acute hospitals (see Figure 5.5 and Figure 5.7). The effects of the pandemic are likely to have impacted prescribing practices during 2020 and 2021. The population level measures introduced to minimise the community spread of COVID-19, combined with the focus on hand hygiene, face masks and social distancing likely resulted in less transmission of infections routinely requiring the prescription of antibiotics in the community. In the acute setting, these factors in addition to reduction in the capacity of acute health services may have played a role in the reduction in this indicator.

Benzodiazepine prescriptions

The NHQRS indicator for the rate of benzodiazepine prescriptions increased during 2019 to 2021 (see Figure 5.8). Further observation over future cycles of NHQRS will be necessary to assess if this trend continues into future years and to better understand if there has been any potential impact of COVID 19 on these rates.

Conclusion

The unprecedented impact of the COVID-19 pandemic on the health service and the rapid national response which was mounted has clearly had a huge impact on normal service delivery across the health and social care system both in Ireland and internationally. Yet despite this, much of the data described through the NHQRS indicators has demonstrated remarkable resilience to the effects of the pandemic and the required reorganisation of the health services in response. This is particularly evident in areas such as the vaccination programmes and timely hip fracture surgeries.

The changes in some domains were more notable than others, for example decreases in hospitalisation rates for COPD and asthma and antibiotic consumption rates. Although some changes appear positive at this time, given the complexity of healthcare delivery during the pandemic, the reasons for any changes in NHQRS indicator data are likely to be multi-factorial. Observation of these indicators in future cycles of the NHQRS will determine if observed trends continue.

Future NHQRS cycles, combined with thorough examination of wider health information datasets will enable scrutiny of the longer-term impacts of COVID-19.

References

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[2] Health Pricing office, "Activity in Acute Public Hospitals in Ireland Annual Report," Health Service Executive, Dublin, 2021.
[3] National Office of Clinical Audit, "Irish National Audit of Stroke National Report 2020," National Office of Clinical Audit, Dublin, 2022.
[4] P. Crowley and A. Hughes, "The impact of COVID-19 pandemic and the societal restrictions on health and wellbeing on service capacity and delivery: A plan for health care and population health recovery, Version 2 (May 2021)," National QI Team, Health Service Executive, Dublin, 2021.
[5] Department of Health, "Health in Ireland Key Trends 2021," Department of Health, Dublin, 2021.
[6] Health Service Executive, "First report of the Structured Chronic Disease Management Programme in General Practice," Health Service Executive, Dublin, 2022.

Chapter 4: Thematic Chapter - Women's Health lens on NHQRS indictors

Cancer screening, diagnosis and surgery

Breast cancer

- Screening rate for breast cancer
- Breast cancer survival rates
- Breast cancer surgical activity

Cervical cancer

- Immunisation rate for human papillomavirus (HPV) vaccine for girls
- Screening rate for cervical cancer
- Cervical cancer survival rates

Colorectal cancer

- Screening rate for colorectal cancer
- Colon cancer survival rates
- Rectal cancer survival rates
- Colon cancer surgical activity
- Rectal cancer surgical activity

Lung cancer

- Lung cancer survival rates

Ovarian cancer

- Ovarian cancer survival rates

Chronic diseases including cardiovascular disease

- Hospitalisation rates for COPD
- Hospitalisation rates for asthma
- Hospitalisation rates for diabetes
- Cardiovascular disease
  - Hospitalisation rates for Chronic Heart Failure
  - In-hospital mortality for Acute Myocardial Infarction (AMI)
  - In-hospital mortality for haemorrhagic stroke
  - In-hospital mortality for ischaemic stroke

Maternity care

- Caesarean section rates

Older women

- Hip fracture surgery
- Benzodiazepine prescriptions

Women's experience of care

- Overall experience of inpatient care

1. Introduction

This is the first time a thematic chapter on women's health has been included in the NHQRS Report. The purpose this chapter is to collate the existing women-related NHQRS indicators and present these in one section of the report, therefore providing an overview of the quality of care[1] through a gender lens. This approach aligns with the wider work of the Department of Health, in particular, the *Women's Health Action Plan 2022-2023*.

The inclusion of this chapter and analysis of the NHQRS indicators via a gender lens will be an iterative process that will evolve over subsequent reporting cycles.

2. Background and context

It is now universally acknowledged that gender is a determinant of health. Women, men, intersex, and non-binary people have different health journeys, experience different health issues, and can be supported and challenged in maintaining good health in different ways. By looking at health through the lens of gender, we can see where we need to do better for all people in Ireland, in a targeted and effective way. Evidence shows that being a woman in Ireland, in Europe, or elsewhere in the world directly impacts how you will experience health throughout your life. (1)

The Department of Health's *Women's Health Action Plan 2022-2023* (the Action Plan) was published in March 2022 https://www.gov.ie/en/publication/232af-womens-health-action-plan-2022-2023/ (1). The Action Plan sets out women's priorities for women's health. It is supported by the voices and perspectives of women, their representatives and women's health professionals, who provided their insights and experiences through a range of listening projects and participations undertaken by the Women's Health Task Force 2020-2021. The Action Plan complements the existing activity underway for men, including the National Men's Health Policy (2). By examining women's health separately, we can see where we can improve, in a targeted and effective way. The Action Plan is focused on improving health outcomes for women in Ireland.

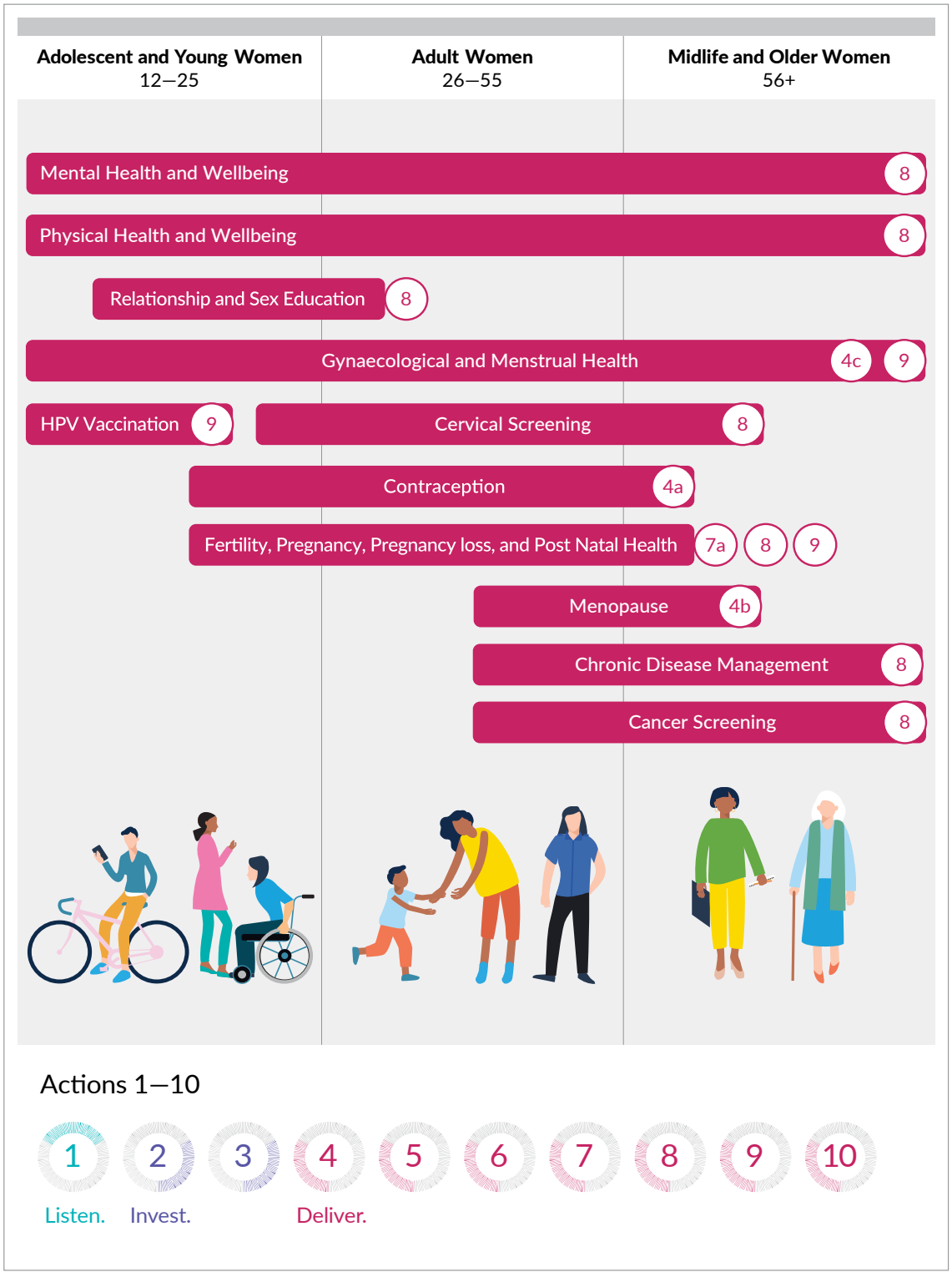
Promoting a lifecourse approach to women's health acknowledges that sex and gender combine with social and environmental determinants of health to influence how health risks and benefits accumulate through life (3). Women's health should be considered across life-stages and backgrounds. Figure WH1 shows the lifecourse issues identified within the scope of the Action Plan.

The Action Plan embeds a new framework for prioritising and responding to women's health issues as they arise across ten actions. *Action 8 Implement existing strategies and policies that support the health of women at all life stages* includes a commitment to "progress the inclusion of healthcare quality indicators with a focus on women's health in the National Healthcare Quality Reporting System Annual Report" (1).

1 It is important to note that from the first quarter of 2020, COVID-19 had a substantial impact on the ability of health services to deliver their normal level of services, this should be taken into consideration in relation to 2020 and 2021 data presented in this chapter and related sections of the report.

Figure WH1: Lifecourse issues impacting women identified in the Women's Health Action Plan 2022-2023

Lifecourse issues impacting women and the actions that address them*



Source: Women's Health Action Plan 2022-2023

3. Approach for the NHQRS 2021/2022 Report

The inclusion of healthcare quality indicators with a focus on women's health in the NHQRS Report will be an iterative process that will be progressed over several reporting cycles. To commence this work and to inform the approach for the NHQRS 2021/2022 Report, an assessment of existing NHQRS indicators against the lifecourse issues identified in the Action Plan was undertaken (see Table WH1). This mapping exercise identified that there were seven existing indicators directly related to women's health and a further 17 existing indicators where it was feasible to apply a gender lens. These indicators align with 6 of the 10 of the lifecourse issues identified in the Action Plan. Further scoping and developmental work is required to assess the availability of robust, reliable, and relevant data that may address additional areas in future reports.

For the purpose of this chapter, indicators have been grouped by lifecourse issue as appropriate (see Table WH1 for details). The results with regards to women's health are considered under the headings of:

- Cancer screening, diagnosis and surgery
- Chronic diseases including cardiovascular disease
- Maternity care
- Older Women
- Women's experience of care in acute hospitals

Table WH1: Mapping of Women's Health Action Plan 2022-2023 lifecourse issues to existing NHQRS indicators, domains and chapter themes

Lifecourse Issue	Aligns with Existing NHQRS Indicator?	Aligned Indicator(s)	NHQRS Domain	Women's Health Chapter Theme
Mental health and wellbeing	Yes	Chronic benzodiazepine usage	5	Older women
Physical health and wellbeing	Yes	Hip fracture surgery	3	Older women
Relationship and sex education	No			
Gynaecological and menstrual health	No			
HPV vaccination – Cervical screening	Yes	1) HPV vaccination 2) Cervical cancer screening 3) Cervical cancer survival	1 & 3	Cancer screening, diagnosis and surgery
Contraception	No			
Fertility, Pregnancy, Pregnancy loss, Postnatal health	Yes	Caesarean section	3	Maternity care
Menopause	No			
Chronic disease management	Yes	Indicators for Hospitalisation Rates: 1) COPD 2) Asthma 3) Diabetes 4) Chronic Heart Failure Indicators for In-Hospital Mortality: 1) AMI 2) Haemorrhagic stroke 3) Ischaemic stroke	2 & 3	Chronic diseases including cardiovascular disease
Cancer screening	Yes	1) Cancer Screening 2) Cancer Survival 3) Surgical activity related to cancer	1 & 3	Cancer screening, diagnosis and surgery
Women's experience of healthcare[1]	Yes	Inpatient experience	4	Women's experience of care

[1] Action Plan theme rather than lifecourse issue

To avoid duplication only new charts which are not already included in other sections of this report are included in this chapter. It is recommended that this chapter is read in conjunction with other relevant sections when considering a set of indicators under a particular topic. Additional technical information is presented in the metadata sheets under the relevant domain. Readers may refer there for more detailed definition, methodology and notes as relevant. For charts presented elsewhere in the report the relevant domain is referenced.

3.1. Cancer screening, diagnosis and surgery

There are more than 200 different types of cancer. In Ireland, the most common types of cancer are prostate, colorectal and lung cancers for males and breast, colorectal and lung cancers for females. The four most common causes of cancer death for females in the period from 2016 to 2018 were lung, breast, colorectal and ovarian (4).

The National Cancer Strategy 2017-2026 emphasises the importance of cancer prevention, detecting and diagnosing cancer early to reduce mortality and the provision of optimal care (required care, in a timely fashion, from an expert clinical team in the optimal location) (5). The Strategy sets out the Department of Health's commitment to public reporting of indicators that reflect the quality and safety of healthcare, including cancer care, through the National Healthcare Quality Reporting System.

Domains 1 and 3 include a number of indicators related to cancer prevention, early detection and optimal care that are relevant across the lifecourse issues identified in the Action Plan. These indicators relate to breast, cervical, lung and colorectal cancer. As one of the top four cancer deaths for women is due to ovarian cancer, information on ovarian cancer survival is also included in this chapter for this cycle of the NHQRS.

Breast cancer

- In Ireland, the National Screening Service BreastCheck invites women between the ages of 50 and 69 years for a free mammogram every two years. Over the past ten years, the uptake of breast cancer screening by those eligible has remained above the target of 70% with a rate of 76.1% in 2020. In comparison to recent OECD data, Ireland's rate was well above the OECD average. (See Domain 1 for further details).
- The five-year age-standardised net survival from breast cancer for the cohort diagnosed in 2014 to 2018 was 88.2% nationally. The net survival from breast cancer has been improving incrementally but was still slightly below the OECD average for the most recently available data (2010-2014 cohort). (See Domain 3 for further details).
- Since 2012 almost all breast cancer surgical activity has been centralised to the designated cancer centres. In 2021, 100% of breast cancer surgery was undertaken in designated cancer centres. (See Domain 3 for further details).

Cervical cancer

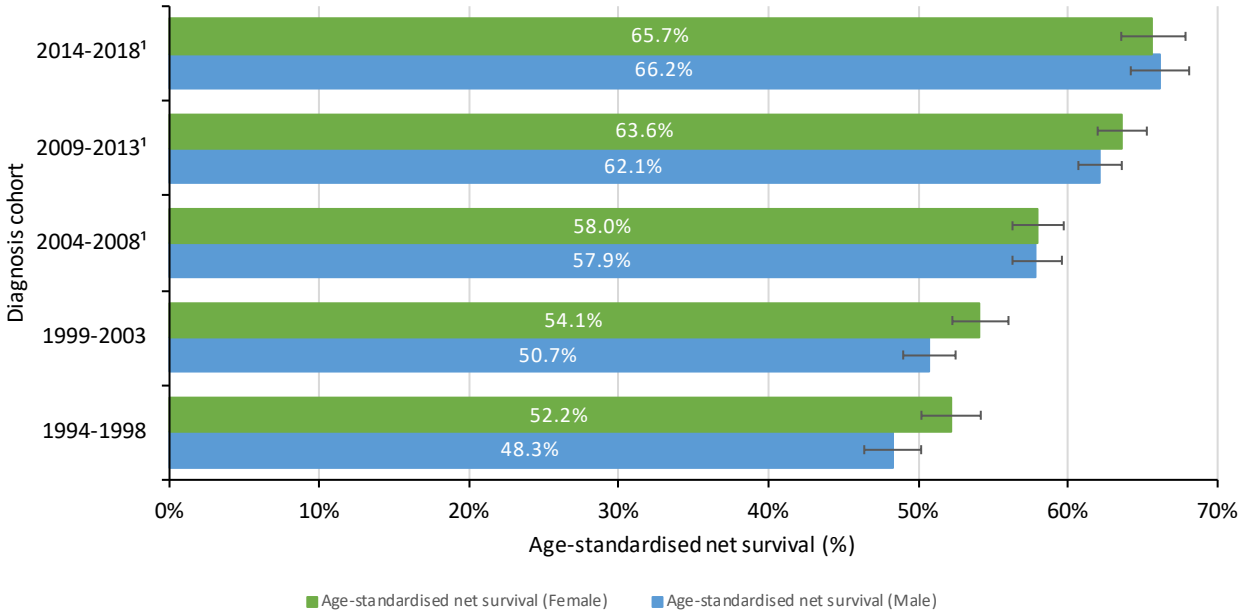
- The HPV vaccine protects against types of HPV that cause 9 out of 10 cervical cancers. The national vaccination programme for HPV for girls has been in place since 2010. For the 2020/2021 school year the rate was at 74.3% though this data is provisional and may be incomplete. For the previous year (2019/2020) the rate for girls was 80.9% (below the 85% target). (See Domain 1 for further details).
- All women and people with a cervix aged 25 to 65 years can avail of CervicalCheck, Ireland's national cervical screening programme. The coverage of CervicalCheck for the five-year period from September 2015 to March 2020, was 78.7%, slightly below the 80% target. In comparison to recent OECD data, Ireland's rate was well above the OECD average. (See Domain 1 for further details).
- The five-year age-standardised net survival from cervical cancer for the cohort diagnosed in 2014 to 2018 was 64.9% nationally. The net survival from cervical cancer has been improving incrementally but was slightly below the OECD average for the most recently available data (2010-2014 cohort). (See Domain 3 for further details).

[2] Domain 3 reports on data on cancer surgery activity and the proportion taking place in designated cancer centres. It is important to note that from the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services, including cancer surgery, due to the reconfiguration and re-designation of wards to accommodate COVID-19 discharges. As a result of this, the HSE entered into a Service Level Agreement (SLA) with private hospitals to allow some public patients to be treated in private hospitals for the duration of the COVID-19 pandemic. This activity was not recorded on HIPE and therefore not included in the analysis included in this chapter.

Colorectal cancer

- In Ireland men and women aged 60 to 69 years can avail of BowelScreen, Ireland's national bowel screening programme. The national uptake rate has been below the 50% target over the six-year period from 2015 to 2020. Uptake has been higher for women than men every year. (See Domain 1 for further details).
- The five-year age and sex-standardised net survival from colorectal cancer for the cohort diagnosed in 2014 to 2018 was 66.2% for males and 65.7% for females nationally. The difference in the survival rate by gender is not statistically significant. The net survival from colorectal cancer has been improving incrementally for both men and women, with the 2014-2018 the only diagnosis cohort where the survival rate was higher for men than women. (See Figure WH2)
- Rectal cancer surgery was more common amongst men than women over the last ten years from 2012-2021. The proportion of surgery that was undertaken in a designated centre is similar between genders with some variation year on year. In 2019 and 2020 a higher proportion of rectal cancer surgery for women was undertaken in a designated cancer centre whereas for 2021 it was slightly higher for men. (See Figure WH3).
- Colon cancer surgery was more common amongst men than women over the last ten years from 2012-2021. The proportion of surgery that was undertaken in a designated centre is similar between genders with some variation year on year. In 2018 and 2019 a higher proportion of colon cancer surgery for women was undertaken in a designated centre whereas for 2020 and 2021 it was higher for men. (See Figure WH4)

Figure WH2: Cumulative 5-year age and sex-standardised net survival in Ireland for male and female colorectal cancer patients diagnosed in five time period cohorts from 1994 to 2018



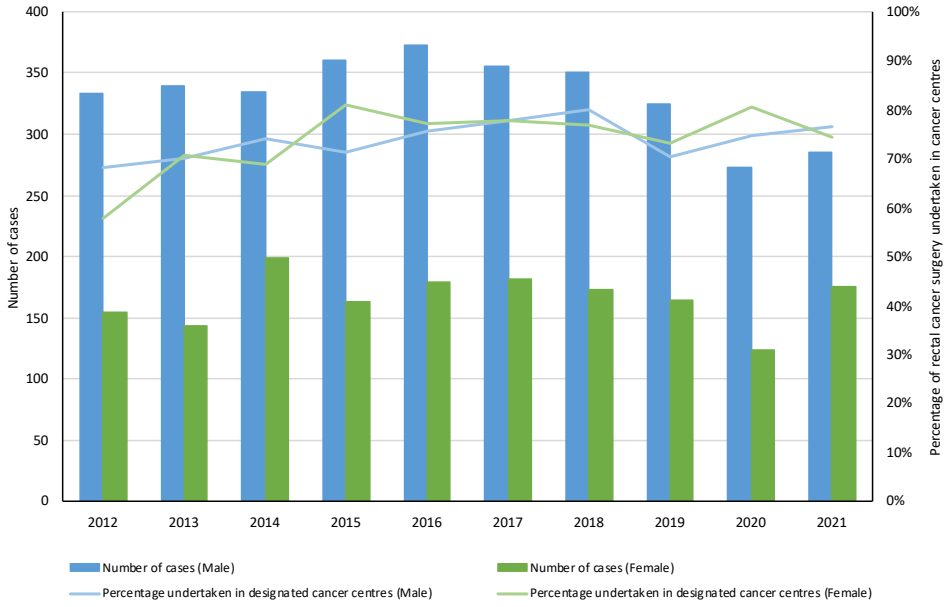
[1] There was a statistically significant difference in the net survival rate for this cohort compared with the previous cohort. For 2014-2018 the difference was significant for males but not for females.

Source: National Cancer Registry Ireland, August 2022

Notes:
(i) Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata.
(ii) Cancer registration is a dynamic process and information is continually updated on the NCRI database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.

Exclusions:
(i) Patients aged <15 years or >99 years at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour.
(ii) Figures here exclude carcinoids of the appendix, because changes in behaviour-coding guidelines for these have changed over time. (Updated comparisons in future may be include carcinoids of appendix but will require conversion and re-analysis based on current rules).

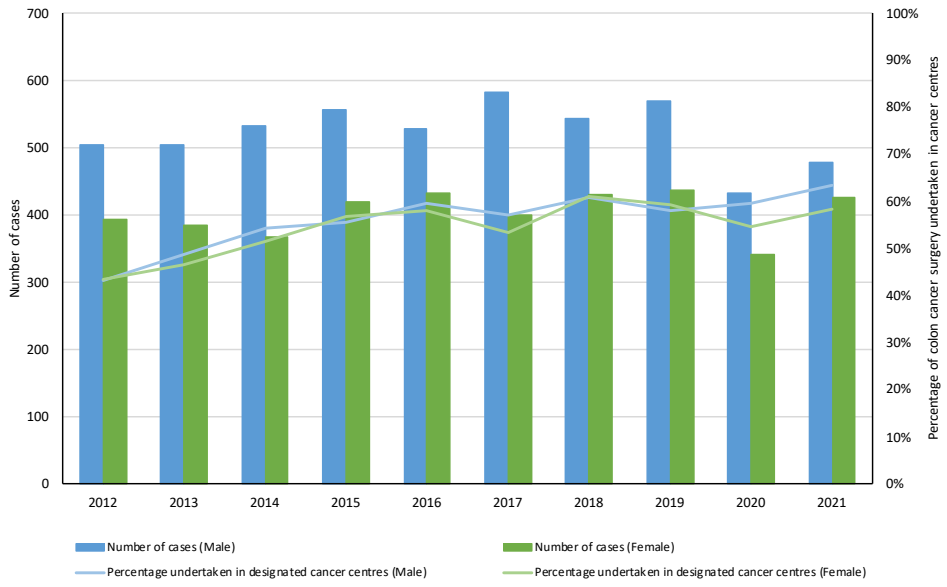
Figure WH3: Number of rectal cancer surgeries undertaken in designated centres in male and female patients whose principal diagnosis is rectal cancer and proportion of total rectal cancer surgery nationally undertaken in designated centres, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Includes rectal carcinoma in situ. In 2015 there was an update to ICD-10 AM/ACHI from the 6th to the 8th edition, which resulted in additional procedure codes related to rectal cancer surgical treatment.
(ii) Data differs from that published in previous NHQRS reports. Letterkenny University Hospital acts as a satellite designated cancer centre of Galway University Hospital for breast cancer services only and is therefore not included here as a designated centre for rectal cancer.

Figure WH4: Number of colon cancer surgeries undertaken in designated centres in male and female patients whose principal diagnosis is colon cancer and proportion of total colon cancer surgery nationally undertaken in designated centres, 2012-2021



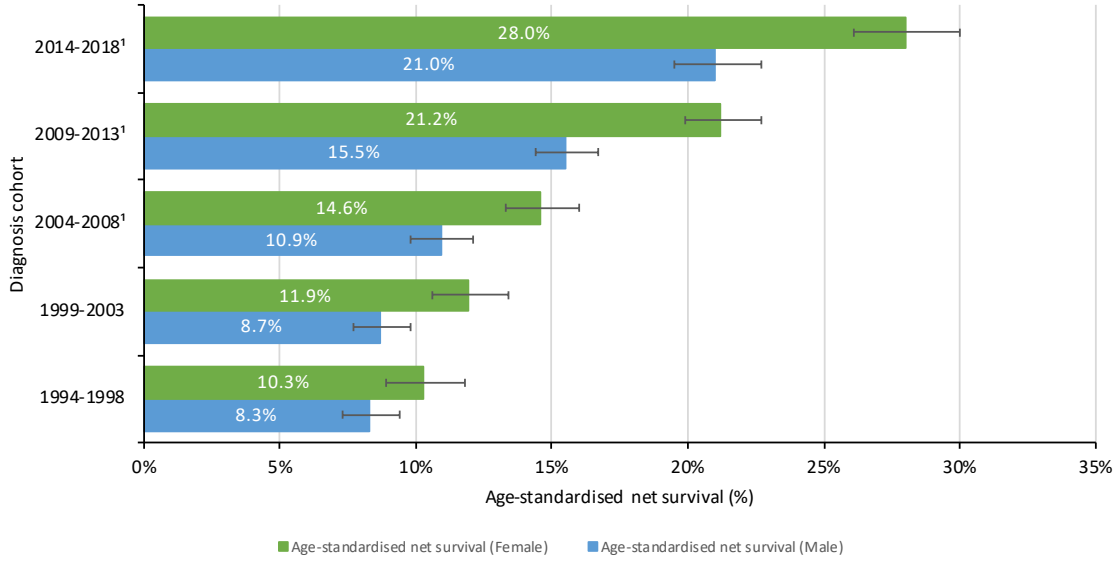
Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Includes rectal carcinoma in situ. In 2015 there was an update to ICD-10 AM/ACHI from the 6th to the 8th edition, which resulted in additional procedure codes related to rectal cancer surgical treatment.
(ii) Data differs from that published in previous NHQRS reports. Letterkenny University Hospital acts as a satellite designated cancer centre of Galway University Hospital for breast cancer services only and is therefore not included here as a designated centre for colon cancer.

Lung cancer

- The five-year age and sex-standardised net survival from lung cancer for the cohort diagnosed in 2014 to 2018 was 28% for females and 21% for males nationally. The difference in the survival rate between men and women is statistically significant. (See Figure WH5)
- The net survival from lung cancer has been improving incrementally for both men and women, with a statistically significant improvement for both women and men over the latest three five-year diagnosis cohorts.

Figure WH5: Cumulative 5-year age and sex-standardised net survival in Ireland for male and female lung cancer patients diagnosed in five time period cohorts from 1994 to 2018



[1] There was a statistically significant difference in the net survival rate for this cohort compared with the previous cohort.

Source: National Cancer Registry Ireland, August 2022

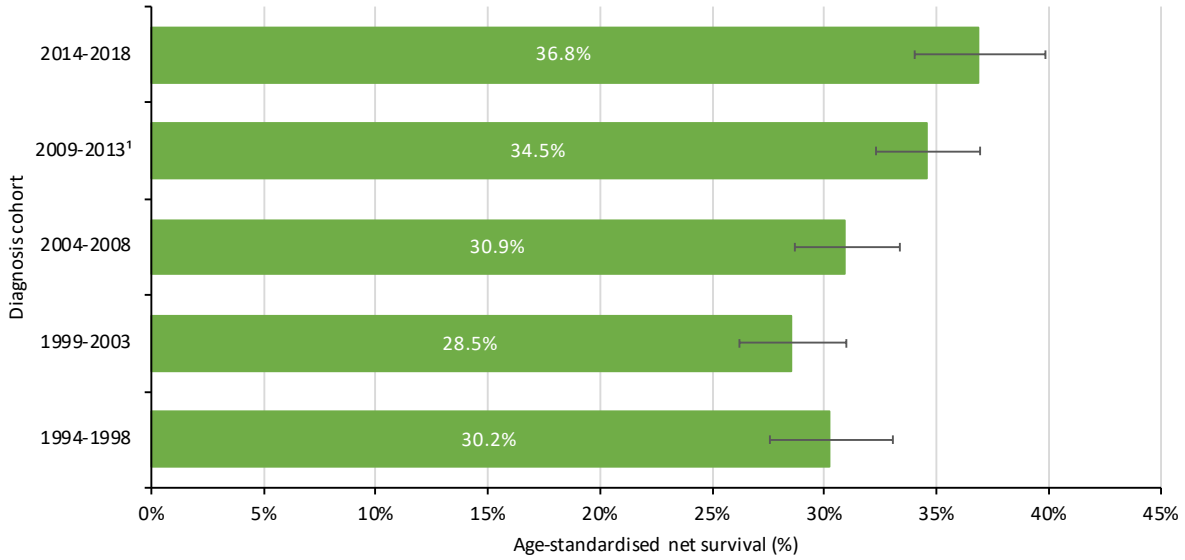
Notes:
(i) Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata.
(ii) Cancer registration is a dynamic process and information is continually updated on the NCRI database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.

Exclusions:
Patients aged <15 years or >99 years at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour.

Ovarian cancer

- The five-year age-standardised net survival from ovarian cancer in the 2014 to 2018 patient cohort was 36.8% nationally. The net survival from ovarian cancer has been improving incrementally over the last four time periods. (See Figure WH6).
- From an international perspective, Ireland was well below the OECD average for the most recently available data (2010-2014 cohort). (See Figure WH7).

Figure WH6: Cumulative 5-year age-standardised net survival in Ireland for female ovarian cancer patients diagnosed in five time period cohorts from 1994 to 2018



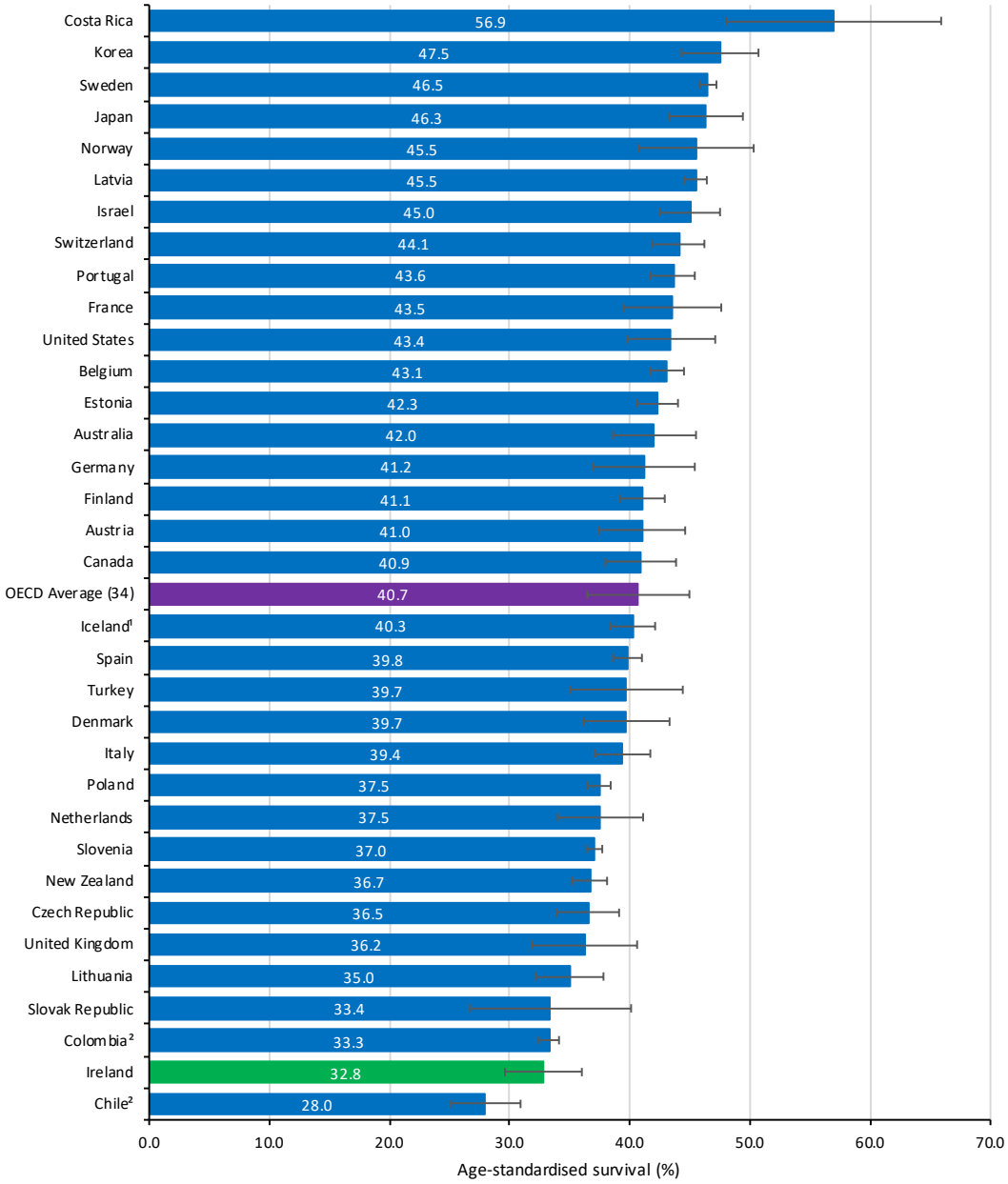
[1] There was a statistically significant difference in the net survival rate for this cohort compared with the previous cohort.

Source: National Cancer Registry Ireland, August 2022

Notes:
(i) Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata.
(ii) Cancer registration is a dynamic process and information is continually updated on the NCRI database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.

Exclusions / Inclusions:
(i) Patients aged <15 years or >99 years at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour.
(ii) Figures here include related structures/adnexa, and apply current behaviour definitions i.e., excluding 'borderline' ovarian tumours that would previously have been considered malignant.

Figure WH7: Cumulative 5-year age-standardised net survival (females 15 years and older), ovarian cancer, 2010-2014, CONCORD-3 study, OECD countries



[1] Estimated value; [2] Different methodology.

Source: Global surveillance of trends in cancer survival 2000–14 (CONCORD-3)

Notes:

(i) Data is presented as published in Global surveillance of trends in cancer survival 2000–14 (CONCORD-3) study; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves. 95% confidence intervals represented by ⊢.

(ii) The CONCORD programme enables timely comparisons of the overall effectiveness of health systems in providing care for 18 cancers that collectively represent 75% of all cancers diagnosed worldwide every year. It contributes to the evidence base for global policy on cancer control. Since 2017, the Organisation for Economic Co-operation and Development has used findings from the CONCORD programme as the official benchmark of cancer survival, among their indicators of the quality of health care in 48 countries worldwide.

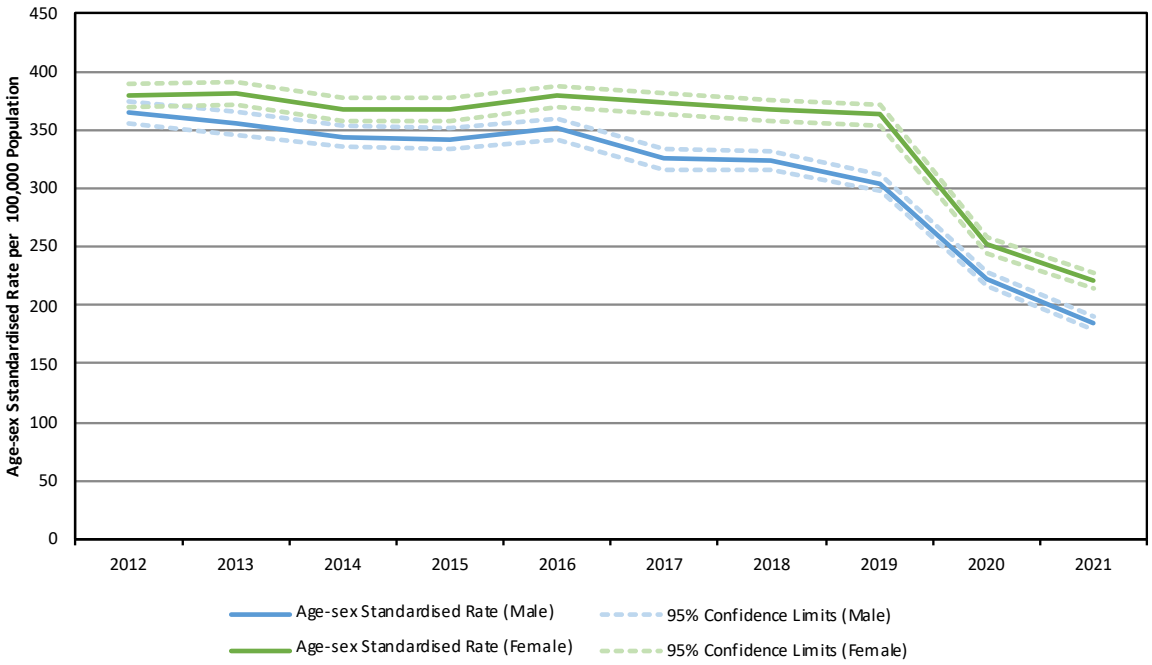
3.2. Chronic diseases including cardiovascular disease

Chronic disease management is identified as a lifecourse issue for women. Women experience conditions in different ways to men. Domain 2 includes indicators on age-sex standardised hospitalisation rates per 100,000 population for chronic obstructive pulmonary disease (COPD), asthma and diabetes. It is worth noting that the COVID-19 pandemic is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

When a gender breakdown is applied to these indicators the following is observed:

- Hospitalisation rates for COPD and asthma per 100,000 population have been consistently higher for females than males over the ten-year period from 2012 to 2021 (See Figures WH8 and WH9).
- Hospitalisation rates for diabetes per 100,000 population have been higher for males than females over the ten-year period from 2012 to 2021 (See Figure WH10).

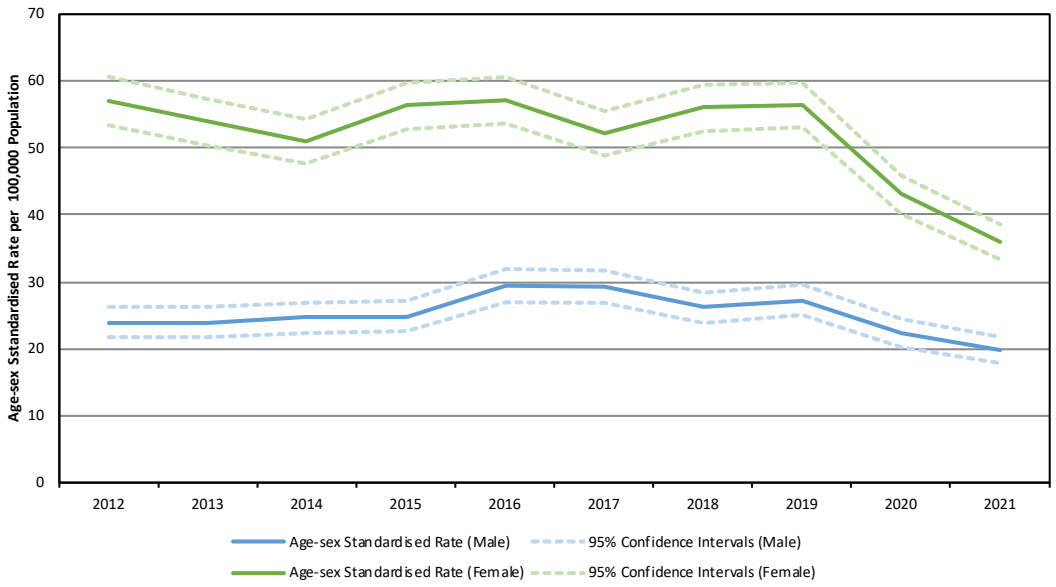
Figure WH8: Age-sex standardised hospitalisation rates for COPD per 100,000 population for males and females in Ireland 2012 – 2021



Source: Hospital In-Patient Enquiry (HIPE)

Note: From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

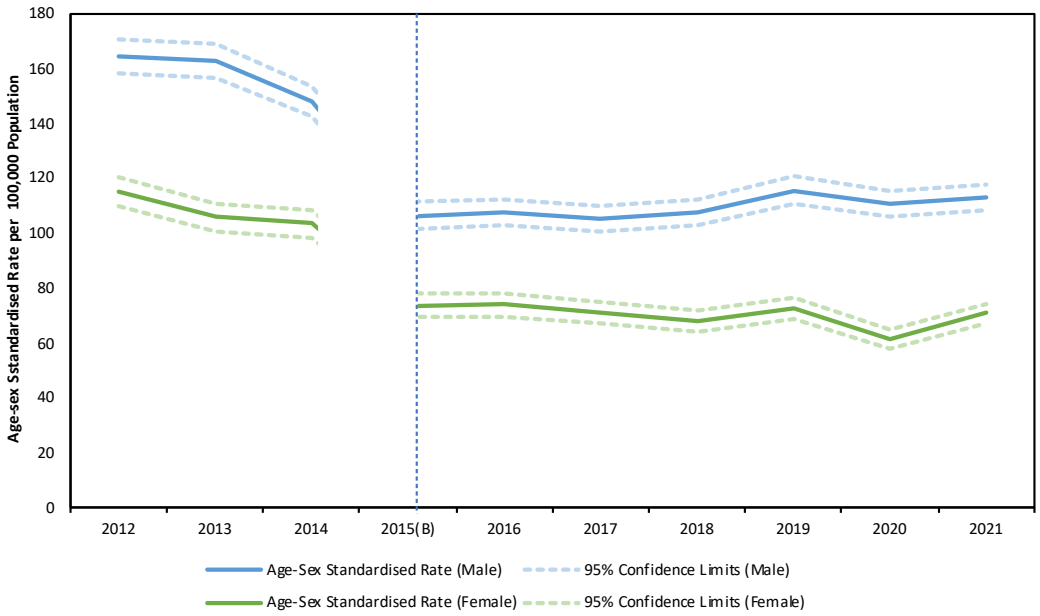
Figure WH9: Age-sex standardised hospitalisation rates for asthma per 100,000 population for males and females in Ireland, 2012 – 2021



Source: Hospital In-Patient Enquiry (HIPE)

Note: From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

Figure WH10: Age-sex standardised hospitalisation rates for diabetes per 100,000 population for males and females in Ireland, 2012 – 2021



Source: Hospital In-Patient Enquiry (HIPE)

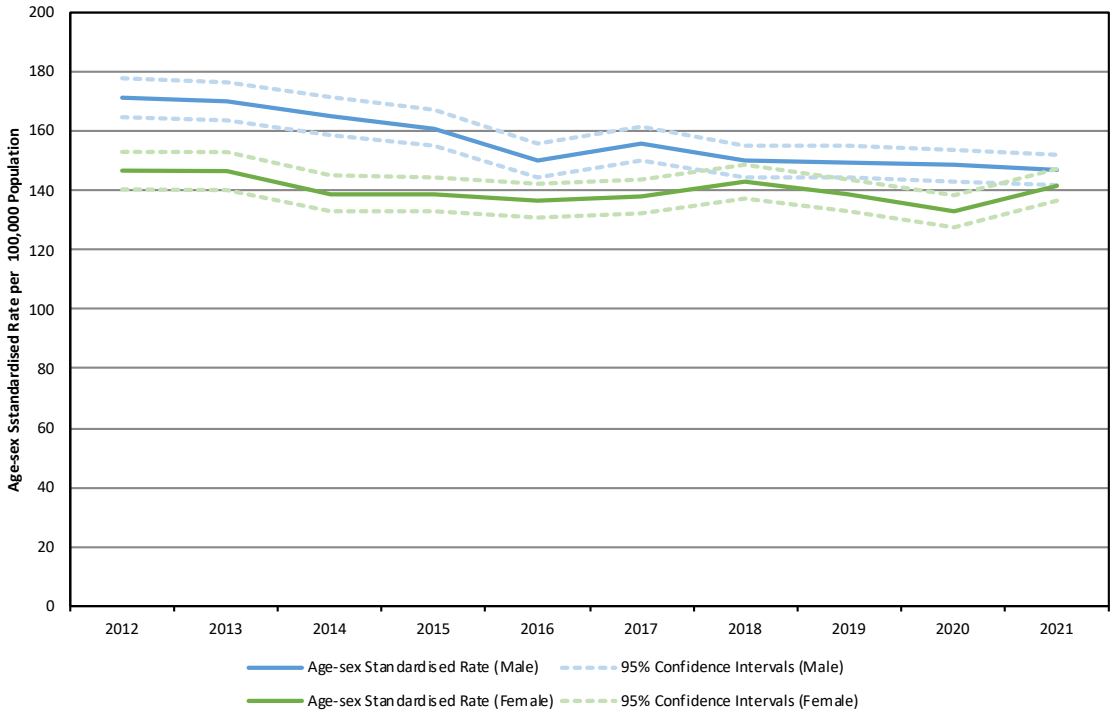
Note:
(i) B = Break in series due to an update to the coding system from ICD-10-AM from 6th to 8th edition resulted in a change in how diabetes is reported in HIPE. Hence the rates for years subsequent to 2015 are not directly comparable with those from previous years'classification.
(ii) From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

3.2.1. Cardiovascular disease

Cardiovascular disease is the major cause of death for women in the European Region, yet it is still perceived predominantly as a men's health issue. While women are at lower risk during their fertile years, protection fades after menopause, when risk increases (3). Domain 2 includes an indicator on the rate of hospitalisations for heart failure. Domain 3 includes indicators on in-hospital mortality within 30 days for acute myocardial infarction (AMI)/ heart attack, haemorrhagic stroke and ischaemic stroke. When a gender breakdown is applied to these indicators the following is observed:

- Hospitalisation rates for congestive heart failure per 100,000 population have been consistently higher for males than females over the ten-year period from 2012 to 2021 (See Figure WH11).
- Age-sex standardised in-hospital mortality rates within 30 days of admission for AMI have been consistently higher for females than males over the ten-year period from 2012 to 2021 (See Figure WH12).
- Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke and ischaemic stroke have been consistently higher for females than males over the ten-year period from 2012 to 2021, however, there has been some convergence in rates in recent years (See Figures WH13 and WH14).

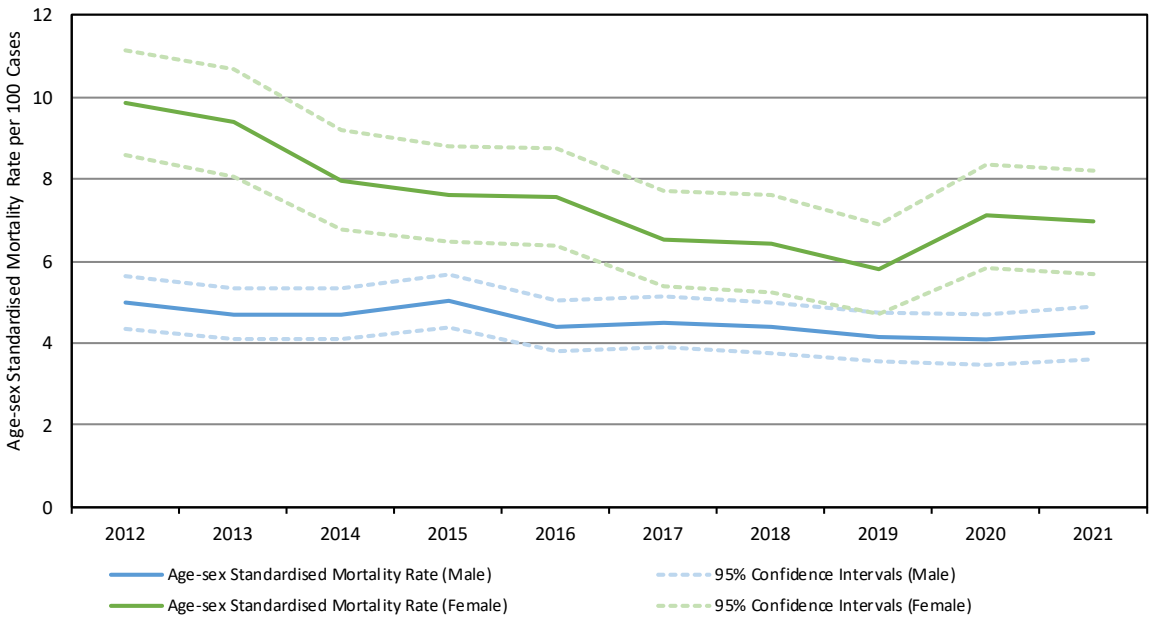
Figure WH11: Age-sex standardised hospitalisation rates for heart failure per 100,000 population for males and females in Ireland, 2012 – 2021



Source: Hospital In-Patient Enquiry (HIPE)

Note: From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

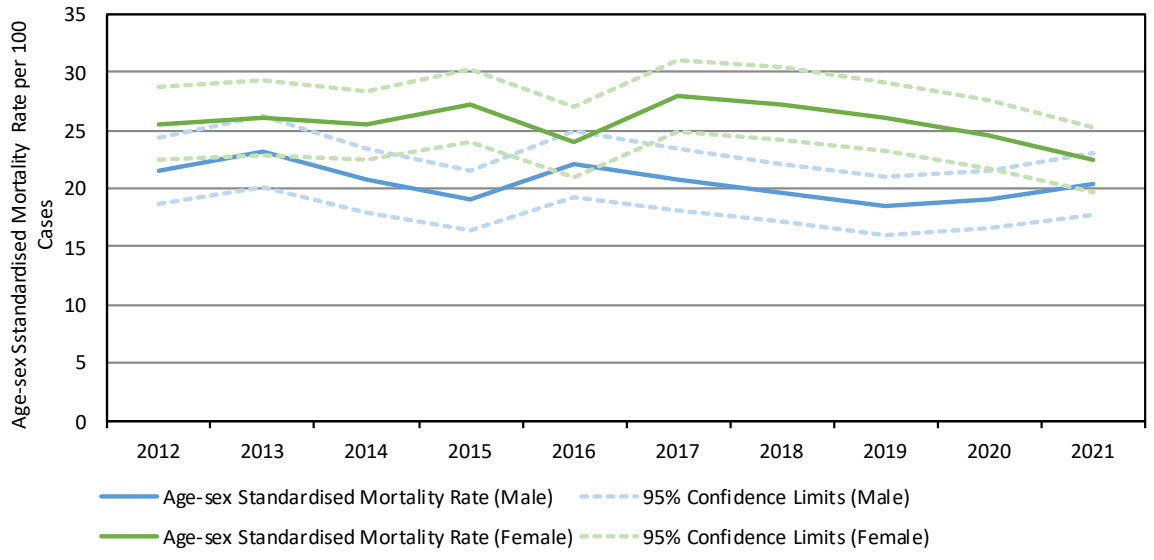
Figure WH12: Age-sex standardised in-hospital mortality rates within 30 days of admission for AMI for males and females, 2012-2021 (OECD age-sex standardisation, aged 45+ only)



Source: Hospital In-Patient Enquiry (HIPE)

Note: From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

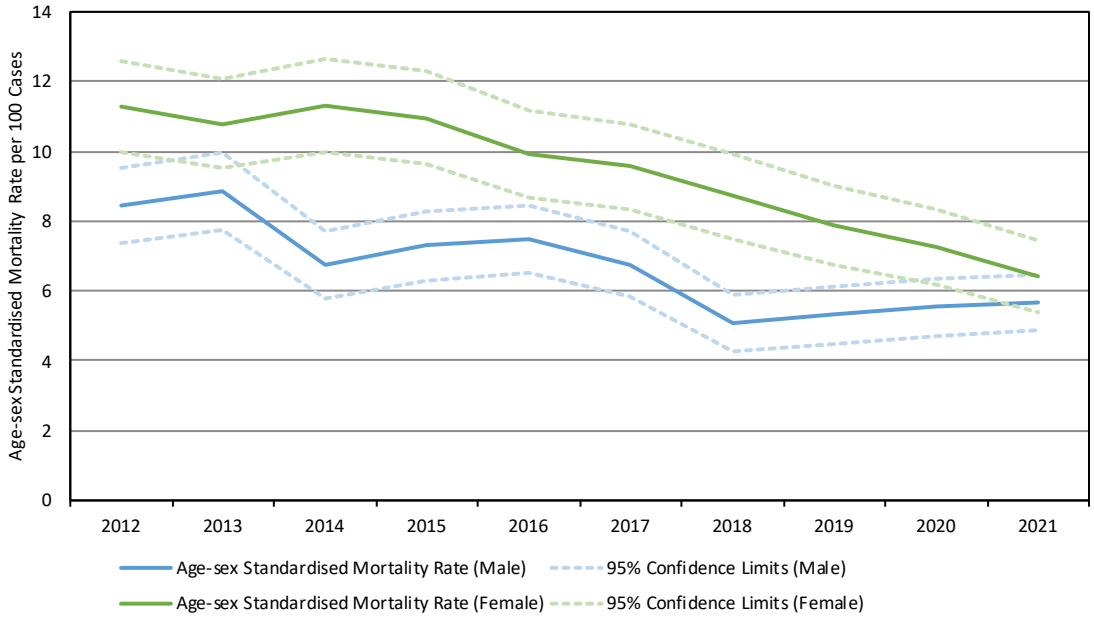
Figure WH13: Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke, males and females, 2012-2021 (OECD age-sex standardisation, aged 45+ only)



Source: Hospital In-Patient Enquiry (HIPE)

Note: From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

Figure WH14: Age-sex standardised in-hospital mortality rates within 30 days of admission for ischaemic stroke, males and females, 2012-2021 (OECD age-sex standardisation, aged 45+ only)



Source: Hospital In-Patient Enquiry (HIPE)

Note: From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

3.3. Maternity care

The National Maternity Strategy (2016-2026) aims to ensure that women have access to safe, high quality, nationally consistent woman-centred maternity care. Domain 3 includes an indicator on caesarean section deliveries per 100 live births.

- The national rates of caesarean section per 100 live births increased over the ten-year-period from 2011 (27.2) to 2020 (35.3). Rates of caesarean delivery have increased in almost all OECD countries in recent decades. There are many possible reasons suggested by the OECD for these increases including reduced risks associated with caesarean delivery, increasing litigation and increases in first births among older women. (See Domain 3 for further details).
- In comparison to recent OECD data, Ireland's rate was well above the OECD average. (See Domain 3 for further details).

3.4. Older women

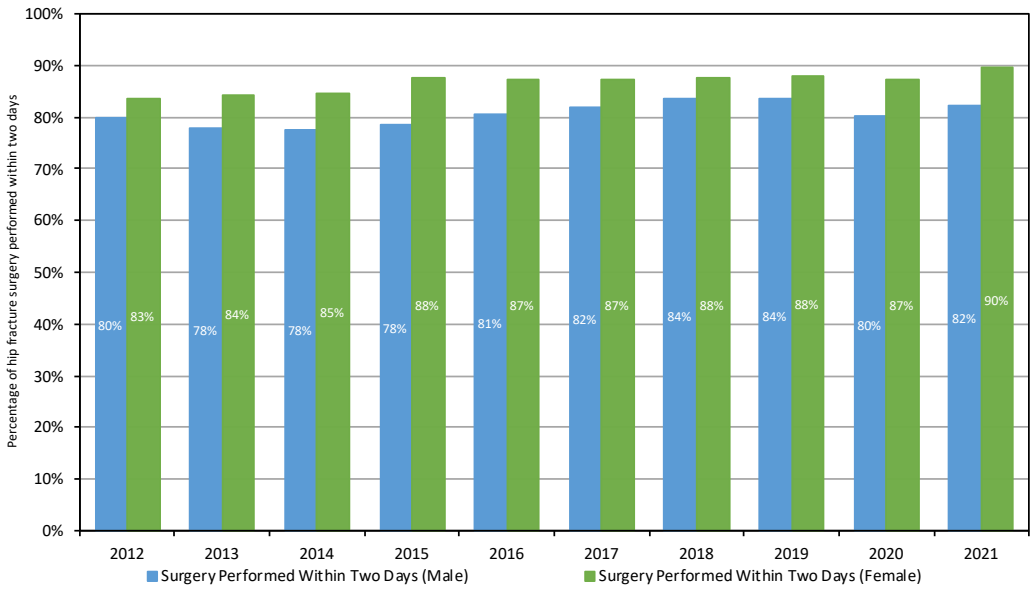
The proportion of older women in Ireland is increasing relative to other age groups. Older women experience particular health challenges to a greater degree than men (1). Physical health and mental health are identified as lifecourse issues that are relevant to women across all stages of life. NHQRS indicators with a particular relevance to older women relate to hip fracture surgery and prescriptions dispensed for benzodiazepines for 12 months or greater.

3.4.1. Hip fracture

Hip fracture is associated with increasing age and has alignment with physical health for older women. Timely surgery and early mobilisation are the cornerstone to successful outcomes in patients with hip fractures. Domain 3 includes an indicator on the in-hospital waiting time for hip fracture surgery for cases (aged 65 years and older) undergoing surgery within 2 days of admission. When a gender lens is applied to this indicator the following can be observed:

- The percentage of hip fracture surgery within 2 days of admission has been consistently higher for females than males over the ten-year period from 2012 to 2021 (See Figure WH15).
- In 2021, there were twice as many hip fracture surgeries performed on women (2,317) than men (1,016). This is aligned with data from previous years.

Figure WH15: In-hospital waiting time for hip fracture surgery for males and females - percentage of cases (aged 65 years and older) undergoing surgery within 2 days of admission, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

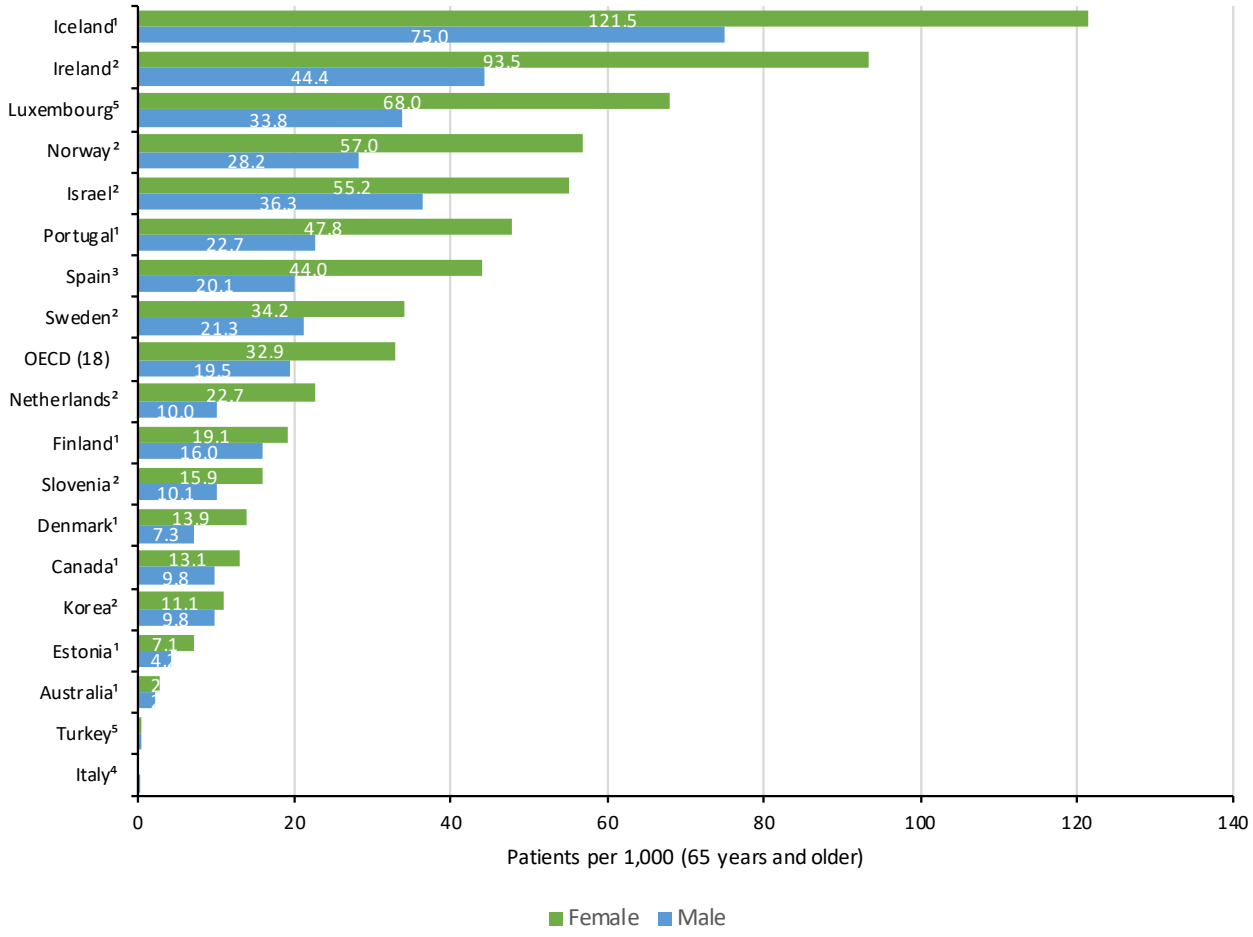
3.4.2. Benzodiazepine and related drugs prescriptions in the community in people aged 65 years and over

Benzodiazepines and related drugs are a class of medication that can be used in the treatment of a number of conditions, including insomnia, anxiety, addiction, agitation and neurological disorders. With an increased sensitivity to benzodiazepines and a slower metabolism, older patients are at high risk of developing delirium and cognitive impairment and are more susceptible to falls and resultant fractures.

Domain 5 includes an indicator on the number of patients aged 65 years and over (per 1,000 eligible patients) who have had a reimbursable prescription for a benzodiazepine or benzodiazepine related medication dispensed for 12 months or more via the Community Drugs Schemes. When a gender lens is applied to this indicator the following can be observed:

- The number of female patients per 1,000 eligible patients who have had a reimbursable prescription for a benzodiazepine or benzodiazepine related medication dispensed for 12 months or more has been consistently higher than the number of male patients over the period from 2013 to 2021. (See Domain 5 for further details).
- Based on the most recent data from the OECD, this pattern is in line with the trend in other OECD countries (See Figure WH16).

Figure WH16: Proportion of males and females with prescriptions dispensed for benzodiazepines or related drugs, aged 65 and over, for 365 days or more, for selected OECD countries, 2020 (or nearest year)



[1] 2020; [2] 2019; [3] 2018; [4] 2017; [5] 2016

Source: Hospital In-Patient Enquiry (HIPE)

Notes:

(i) The OECD Healthcare Quality and Outcomes (HCQO) indicator definition refers to individuals aged 65 years and older prescribed > 365 DDDs (365 days or longer) of benzodiazepines or benzodiazepine related drugs. Data for Ireland, sourced from the Primary Care Reimbursement Service, is not available by DDD or by day. Therefore, for Ireland, the numerator refers to persons aged 65 years and over with 12 individual prescription claim months.

(ii) For Ireland eligible patients refer to those who are eligible for a prescription via Community Drugs Schemes and are captured via the Primary Care Reimbursement Service's information system. See metadata sheets for detailed indicator definitions and methodology. Differences in coding practices among countries may affect the comparability of data. Differences in prescription policies and reimbursement systems may also affect data comparability.

(iii) Seven countries have provided data for 2020 which would have been impacted by COVID-19. Data for Ireland relates to 2019, Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.

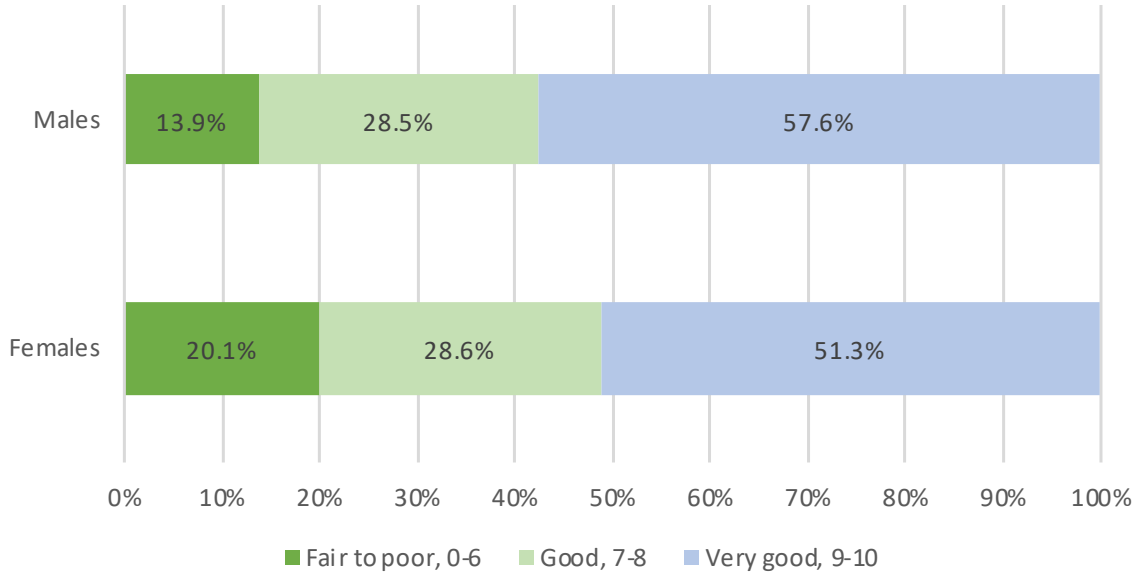
(iv) OECD (18) average is an unweighted average based on latest available year's data for countries which have reported for 2016 or later.

3.5. Women's experience of care in acute hospitals

The Women's Health Action Plan is focused on improving health outcomes and experiences for women in Ireland. Domain 4 includes indicators related to patient experience of inpatient care. When a gender lens is applied to patient reported experience the following can be observed:

- In total, 5,405 females (50.3%) and 5,338 males (49.7%) participated in the 2021 National Inpatient Experience Survey.
- Male participants gave more positive ratings than female participants across all stages of care. 20.1% of women rated their overall experience of care as fair to poor versus 13.9% of men (See Figure WH17).

Figure WH17: Ratings of overall experience. Inpatient Reported Responses by females and males, 2021



Source: The National Inpatient Experience Survey, 2021

4. Conclusion

This thematic chapter highlights the existing NHQRS indicators which align to women's health. It provides an overview of indicators which are grouped into themes relevant to women's health across their lifetime including cancer, chronic diseases, maternity care, physical and mental health.

Based on the current set of NHQRS indicators there are many positives in relation to women's health but there are also areas where there may be room for improvement.

- In relation to cancer outcomes, cancer survival rates for women for all cancers (which are included on in the NHQRS) have been improving over time. Cancer survival is one of the key measures of the effectiveness of cancer care, taking into account both early detection of the disease and the effectiveness of treatment.
- From a chronic diseases perspective, women have higher rates of hospitalisation for COPD and asthma than men. For diabetes, men have higher rates of hospitalisation than women. In relation to cardiovascular health, although rates of hospitalisation for chronic heart failure are higher for men, women have a higher rate of in-hospital mortality from AMI/heart attack.
- Physical and mental health are lifecourse issues for women. The number of hip fracture surgeries is higher amongst women than men, but a higher proportion are completed within two days of admission. Longer term benzodiazepine prescriptions are higher amongst women aged over 65 compared to men of the same age group.
- Women reported lower ratings of their experience of care in hospitals than men.

Further investigation is required by policy makers and service providers to identify the reasons for the differences observed when NHQRS indicators were considered through a gender lens and to identify opportunities for quality improvement.

The NHQRS aims to provide a mechanism through which data on the quality of Ireland's healthcare structures, processes and outcomes can be made publicly available so that this data may be compared against accepted standards or best practices. The reporting of performance and outcome indicators is designed to enable policy makers and service providers to improve the quality of health service provision. The inclusion of healthcare quality indicators with a focus on women's health will be an iterative process that will be progressed over several reporting cycles. Further development work on identification of indicators which present data through a gender lens will continue to be progressed via the NHQRS and also the wider Health Systems Performance Assessment Framework for Ireland.

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2. **Department of Health and Children**. *National Men's Health Policy: Working with men in Ireland to achieve optimum health and wellbeing*. Dublin : Department of Health and Children, 2009.
3. **World Health Organization Regional Office for Europe**. *Strategy on women's health and well-being in the WHO European Region*. Copenhagen : World Health Organization, 2016.
4. **National Cancer Registry Ireland**. *Cancer in Ireland 1994-2019: Annual Report of the National Cancer Registry*. Dublin : National Cancer Registry Ireland, 2021.
5. **Department of Health**. *The National Cancer Strategy 2017-2026*. Dublin : Department of Health, 2017.

1

Domain 1: Helping people to stay healthy and well

Overview of selected indicators

There are 8 indicators in this domain in the following 2 areas:

- Immunisation rates
- Cancer screening rates

Immunisation rates

Immunisation (getting a vaccine and becoming immune) is a simple and safe way of protecting people against harmful or communicable diseases such as meningitis, measles, mumps and rubella and influenza. These serious illnesses can have complications such as long-term disability and death. The WHO estimates that immunisation currently prevents 3.5-5 million deaths every year from diseases like diphtheria, tetanus, pertussis, influenza and measles [1].

Vaccines not only protect those who receive them but can also protect against disease among other individuals in the community who may be too young or too sick to receive the vaccines. This is known as 'herd immunity', 'herd protection' or 'population immunity'. Many countries including Ireland have introduced immunisation programmes for their populations. This report focuses on two of the childhood vaccines, MMR (measles, mumps and rubella) and MenC (meningococcal C), as well as vaccination against seasonal influenza and the human papilloma virus (HPV).

Vaccination programmes are one measure used for prevention of infection. This in turn reduces the need for antibiotics to treat infection. Vaccination is recognised under Strategic Intervention 3.17 of Ireland's Second One Health National Action Plan on Antimicrobial Resistance 2021–2025 (iNAP2).

All medical practitioners, including clinical directors of diagnostic laboratories, are required to notify the Medical Officer of Health (MOH)/Director of Public Health (DPH) of certain diseases. This information is used to investigate cases with the purpose of preventing the spread of infection and development of further cases. This information can also facilitate the early identification of outbreaks. Lastly, it is also used to monitor the burden and pattern of diseases, which can provide the evidence for public health interventions.

Measles, mumps, rubella, invasive meningococcal disease and influenza are all notifiable diseases.

The current indicators for immunisations are:

- Immunisation rate for MMR vaccine
- Immunisation rate for MenC vaccine
- Immunisation rate for influenza for persons aged 65 and older
- Immunisation rate for influenza among healthcare workers in hospitals
- Immunisation rate for human papillomavirus (HPV) vaccine

Cancer screening rates

The National Screening Service (NSS) was established in January 2007. The NSS encompasses BreastCheck - The National Breast Screening Programme, CervicalCheck - The National Cervical Screening Programme, BowelScreen – The National Bowel Screening Programme and Diabetic RetinaScreen – The National Diabetic Retinal Screening Programme.

The screening carried out by the NSS's three cancer screening programmes helps prevent significant illness and death by detecting cancer or pre-cancer at an earlier and therefore, more treatable stage. Screening is not a diagnostic tool; its purpose is risk reduction. Screening uptake rates are an important measure of the performance and usage of preventative services and early detection. Public reporting of these rates also increases awareness and knowledge of these cancers in the population.

In this report the cancer screening rates for breast, cervical and colorectal cancers are included as a reflection of the usage of preventative services available in Ireland.

The importance of screening is recognised in Ireland's National Cancer Strategy 2017 – 2026, specifically Chapter 6 and Recommendations 5 and 6, which aim to enhance current screening services.

The indicators for cancer screening are:

- Screening rate for breast cancer
- Screening rate for cervical cancer
- Screening rate for colorectal cancer

In March 2020, screening services were paused due to the global COVID-19 pandemic. There was a phased restart of services from July 2020 onwards. Screening accounts for just under 7% of all cancers detected in Ireland every year and so delays in screening are likely to have a small impact on detection rates. The effect of the pause in screening on the well population during the COVID-19 pandemic has yet to be determined. The impact of COVID-19 on screening uptake rates will likely be reflected in the data in future NHQRS reports.

Immunisation rate for MMR vaccine

Definition

Percentage of children 24 months of age who have received at least one dose of the MMR (measles, mumps and rubella) vaccine.

Description

The MMR vaccine protects people against measles, mumps and rubella (also called German measles). These are highly infectious, viral diseases, which can result in serious complications and even death. Prior to the introduction of vaccine programmes they commonly caused illness in children.

Two doses of the MMR vaccine are routinely recommended in Ireland. The first dose is recommended at 12 months of age and the second dose is recommended at 4 to 5 years of age [2]. Although, the safety of vaccines has been established in a large number of peer-reviewed, academic studies, there are still population groups that are not reaching the vaccination rate required for community protection or 'herd immunity'.

The national vaccination rate for MMR over the last ten years and the regional vaccination rates are presented in this report. In Ireland, the national target for MMR vaccine uptake is 95% which is in line with international and European targets. Ireland has made progress to meet the European target for measles elimination (<1 case per million) in recent years. However, the threat of outbreaks persists as long as there are immunity gaps within the population.

Rationale for the inclusion of indicator

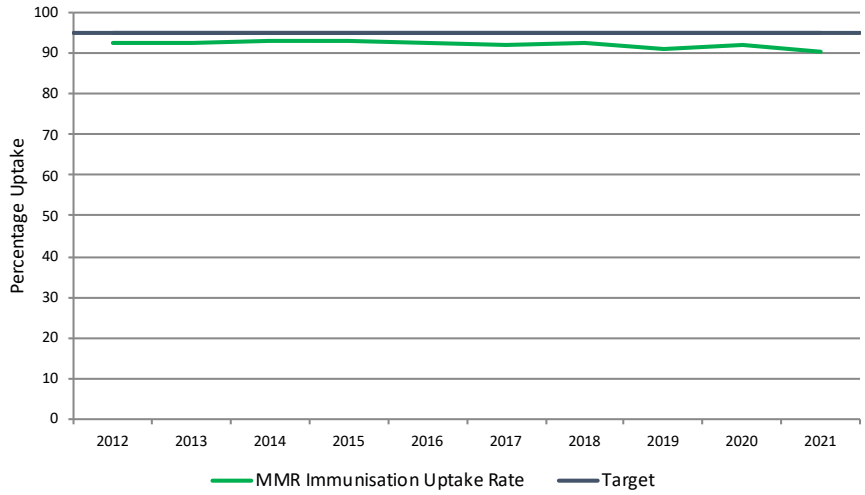
Measles is a highly contagious, serious disease caused by a virus. The WHO estimates that more than 140,000 people died from measles in 2018 – mostly children under the age of 5 years, despite the availability of a safe and effective vaccine. Unvaccinated young children are at highest risk of measles and its complications, including death. Over 13,000 cases of measles were reported in Europe in 2019 [3].

Sporadic measles cases continue to be reported to the HSE. Since 2020, in Ireland, most confirmed cases reported recent travel to countries where outbreaks were ongoing.

Commentary

- In the period from 2012 to 2021 the national immunisation uptake of MMR for children at 24 months of age has remained below the 95% target. The national rate was 91.3% in 2019, this increased slightly to 91.8% in 2020 and decreased in 2021 to 90.4%.
- While most Community Health Organisations (CHOs) were close to meeting the target, no CHO met the target in 2020 or in 2021.
- In 2020 three Local Health Offices met the 95% target and in 2021 only two Local Health Offices met the target. In both 2020 and 2021, the highest uptake was in Laois/Offaly (96.0% and 95.8% respectively) and the lowest uptake was in Donegal (85.1% and 82.0% respectively).
- On 12th March 2020, the government introduced measures as part of the national effort to interrupt the transmission of COVID-19; measures continued into 2021. GPs and their practice nurses have been heavily involved in COVID-19 related work dealing with both work related to infections and COVID-19 vaccination roll out. Further investigation is required to identify if this had any impact on MMR vaccination uptake in 2020 and 2021.

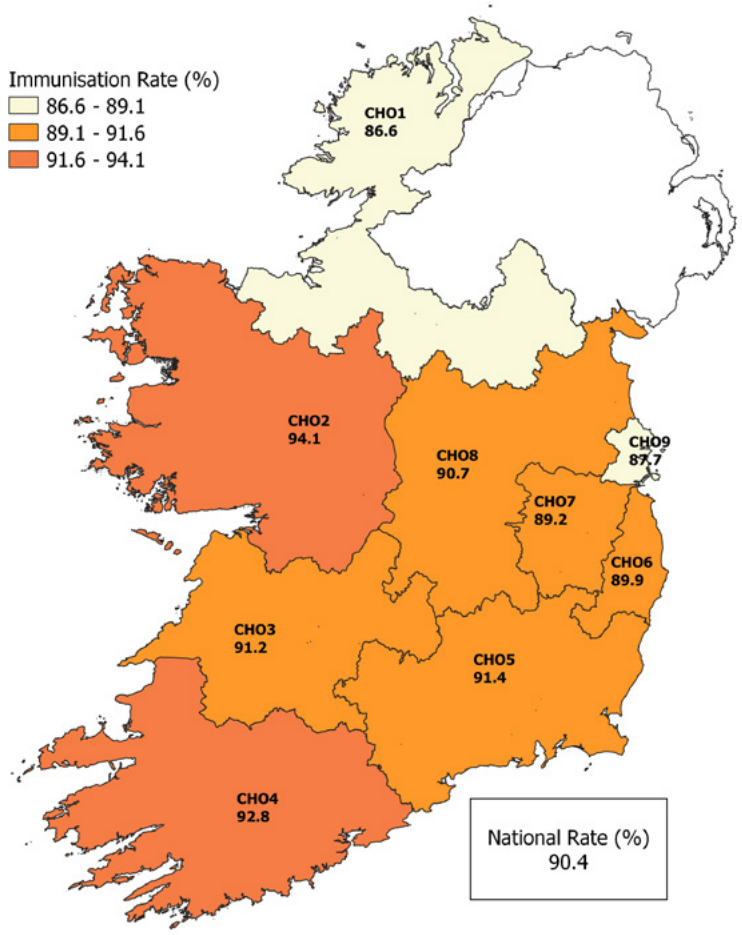
Figure 1.1: Immunisation rate for MMR for children at 24 months, percentage uptake, 2012– 2021



Source: Health Protection Surveillance Centre (HPSC).

Notes:
(i) The data for 2018 are incomplete as data for some regions were incomplete.
(ii) The immunisation uptake data above relate to children who have reached their second birthday and have received one dose of the vaccine.
(iii) HSE IT systems suffered a ransomware cyber-attack on 14 May 2021. As a result, local immunisation databases were not available for a period and some caution is required in interpreting data for 2021.

Figure 1.2: Immunisation rate for MMR for children at 24 months by Community Health Organisation (CHO), 2021



Source: Health Protection Surveillance Centre (HPSC).

Notes:
(i) The immunisation uptake data above relate to children who have reached their second birthday and have received one dose of the vaccine.
(ii) HSE IT systems suffered a ransomware cyber-attack on 14 May 2021. As a result, local immunisation databases were not available for a period and some caution is required in interpreting data for 2021.

Table 1.1: Immunisation rate for MMR for children at 24 months by Local Health Office and Community Health Organisation, 2020 and 2021

Community Health Organisation	Local Health Office	MMR Immunisation Uptake Rate 2020 (%)	MMR Immunisation Uptake Rate 2021 (%)
CHO 1	Cavan/Monaghan	91.5	89.5
	Donegal	85.1	82.0
	Sligo/Leitrim	91.8	89.8
	CHO 1 Total	**89.1**	**86.6**
CHO 2	Galway	93.8	94.6
	Mayo	93.3	92.9
	Roscommon	93.7	94.1
	CHO 2 Total	**93.6**	**94.1**
CHO 3	Clare	92.3	92.4
	Limerick	93.5	90.0
	Tipperary North/East Limerick	93.2	91.3
	CHO 3 Total	**93.1**	**91.2**
CHO 4	North Cork	94.6	92.7
	North South Lee	93.1	93.3
	West Cork	89.5	89.6
	Kerry	91.7	92.8
	CHO 4 Total	**92.8**	**92.8**
CHO 5	Carlow/Kilkenny	93.1	89.9
	Tipperary South	93.9	93.5
	Waterford	91.3	90.5
	Wexford	92.6	92.1
	CHO 5 Total	**92.7**	**91.4**
CHO 6	Dublin South	92.5	92.6
	Dublin South East	94.5	93.1
	Wicklow	85.2	84.8
	CHO 6 Total	**90.6**	**89.9**
CHO 7	Dublin South City	93.4	90.0
	Dublin South West	91.6	89.1
	Dublin West	95.2	85.5
	Kildare/West Wicklow	94.0	91.5
	CHO 7 Total	**93.6**	**89.2**
CHO 8	Laois/Offaly	96.0	95.8
	Longford/Westmeath	95.5	95.6
	Louth	86.1	86.3
	Meath	90.1	86.5
	CHO 8 Total	**91.9**	**90.7**
CHO 9	Dublin North West	90.1	89.1
	Dublin North Central	88.6	87.7
	Dublin North	87.1	86.6
	CHO 9 Total	**88.5**	**87.7**
National Average		**91.8**	**90.4**

Source: Health Protection Surveillance Centre (HPSC)

Notes:
(i) The immunisation uptake data above relate to children who have reached their second birthday and have received one dose of the vaccine.
(ii) HSE IT systems suffered a ransomware cyber-attack on 14 May 2021. As a result, local immunisation databases were not available for a period and some caution is required in interpreting data for 2021.

Immunisation rate for Meningococcal C vaccine

Definition

Percentage of children aged 24 months of age who have received one dose of vaccine against Meningococcal serogroup C on or after 12 months of age.

Description

Meningococcal bacteria can cause meningitis, septicaemia (also known as "bloodstream infection") or both. The disease can cause death or serious disability such as deafness, brain damage, or loss of limbs.

Meningococcal serogroup C ('MenC') is one of several different serogroups of meningococcal bacteria. MenC disease can be prevented by vaccination.

The current recommended primary schedule consists of one dose of MenC vaccine at 6 months and a second dose of MenC (as part of a combined Hib/MenC vaccine) at 13 months.

The MenC booster vaccine was introduced into the HSE school immunisation programme in September 2014 and is given in first year of second level school (age 12-13 years) [2].

The national vaccination rate for MenC over the last ten years and the regional vaccination rates are presented in this report. The national target for uptake is 95%, which is in line with international targets.

Rationale for the inclusion of indicator

MenC was responsible for about 30% of cases of meningitis/septicaemia prior to the introduction of the MenC vaccine in 2000.

Notes of changes for the Meningococcal C vaccine

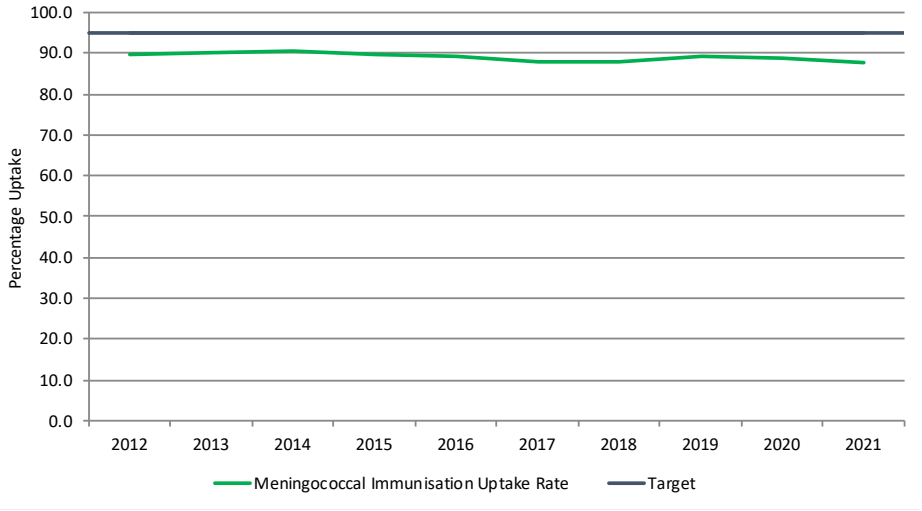
The recommended schedule changed for all babies born on or after October 1st, 2016 (Quarter 4 2018 24-month cohort) to one dose of MenC at 6 months and a second dose of MenC (as part of a combined Hib/MenC) at 13 months [2].

Not all local databases/reports were configured to count the combined Hib/MenC vaccine where it is the second dose of MenC and this has resulted in data coverage issues for MenC2 (two doses of MenC vaccine). Due to the challenges with recording national coverage of 2 doses of MenC by age 24 months, in 2021 the indicator changed to report children who have received one dose of MenC between the age of 12 and 24 months of age.

Commentary

- The national immunisation rate for MenC (MenCb uptake - one dose of vaccine against MenC on or after 12 months of age) has remained below the 95% target since its introduction in 2012. The uptake rate was 89.1% in 2019. This decreased slightly to 88.9% in 2020 and further in 2021 to 87.7%.
- No Community Health Organisation or Local Health Office achieved the National Target (95%) in 2020 or 2021. Louth had the lowest uptake in 2020 (81.6%). In 2021, Donegal had the lowest uptake rate (80.5%). In 2020 and 2021 Longford/Westmeath had the highest uptake (94.5% and 94.6% respectively).
- On 12th March 2020, the government introduced measures as part of the national effort to interrupt the transmission of COVID-19; measures continued into 2021. GPs and their practice nurses have been heavily involved in COVID-19 related work dealing with both work related to infections and COVID-19 vaccination roll out. Further investigation is required to identify if this had any impact on vaccination uptake in 2020 and 2021.

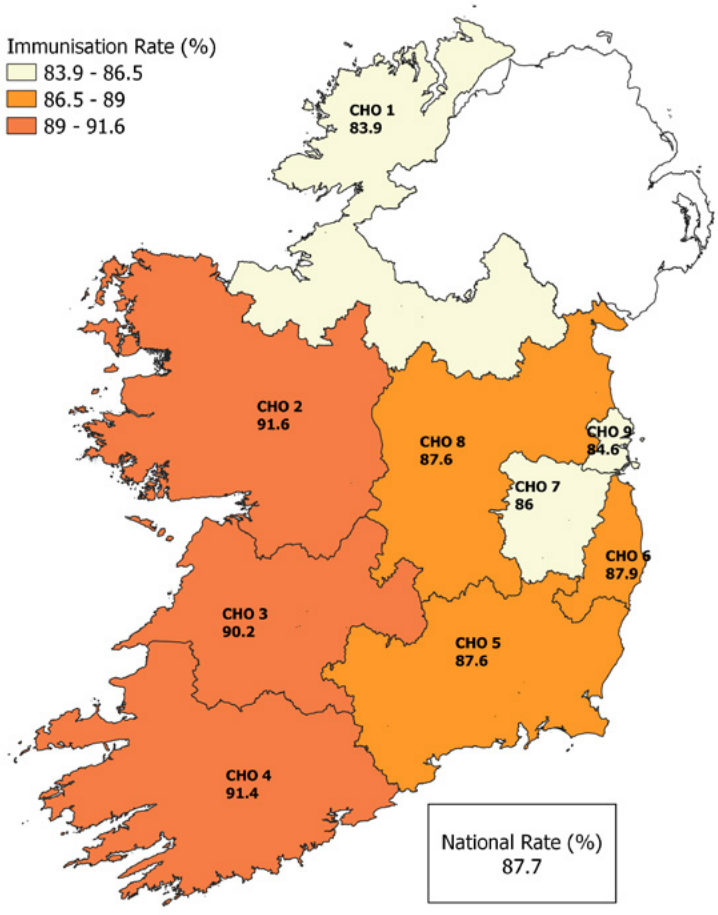
Figure 1.3: Immunisation rate at 24 months of age for one dose of vaccine against MenC on or after 12 months of age, percentage uptake, 2012-2021



Source: Health Protection Surveillance Centre (HPSC).

Notes:
(i) Data refers to MenCb uptake which is one dose of vaccine against meningococcal group C on or after 12 months of age and before 24 months of age. Note this is a different indicator to that used in previous NHQRS reports (MenC 2). The change is due to data limitations with the MenC 2 indicator.
(ii) Prior to 2019, data may be incomplete for some CHOs.
(iii) HSE IT systems suffered a ransomware cyber-attack on 14 May 2021. As a result, local immunisation databases were not available for a period and some caution is required in interpreting data for 2021.

Figure 1.4: Immunisation rate at 24 months for one dose of vaccine against MenC on or after 12 months of age by Community Health Organisation (CHO), 2021



Source: Health Protection Surveillance Centre (HPSC).

Table 1.2: Immunisation rate for children at 24 months of age for one dose of vaccine against MenC on or after 12 months of age, by Local Health Office and Community Health Organisation, 2020-2021

Community Health Organisation	Local Health Office	Meningococcal C Immunisation Uptake Rate 2020 (%)	Meningococcal C Immunisation Uptake Rate 2021 (%)
CHO 1	Cavan/Monaghan	87.6	86.9
	Donegal	82.6	80.5
	Sligo/Leitrim	88.8	84.9
	CHO 1 Total	**86.0**	**83.9**
CHO 2	Galway	90.6	92.2
	Mayo	90.3	90.0
	Roscommon	90.0	92.1
	CHO 2 Total	**90.4**	**91.6**
CHO 3	Clare	91.2	91.1
	Limerick	93.1	87.6
	Tipperary North/East Limerick	92.5	92.3
	CHO 3 Total	**92.4**	**90.2**
CHO 4	North Cork	91.0	90.6
	North South Lee	90.7	92.0
	West Cork	85.6	87.5
	Kerry	88.6	91.7
	CHO 4 Total	**90.0**	**91.4**
CHO 5	Carlow/Kilkenny	89.1	84.5
	Tipperary South	91.8	90.9
	Waterford	86.3	87.7
	Wexford	90.3	88.1
	CHO 5 Total	**89.3**	**87.6**
CHO 6	Dublin South	91.4	89.4
	Dublin South East	93.9	92.0
	Wicklow	83.6	83.0
	CHO 6 Total	**89.5**	**87.9**
CHO 7	Dublin South City	90.6	86.9
	Dublin South West	87.3	85.8
	Dublin West	90.0	81.0
	Kildare/West Wicklow	92.4	89.1
	CHO 7 Total	**90.4**	**86.0**
CHO 8	Laois/Offaly	93.9	93.8
	Longford/Westmeath	94.5	94.6
	Louth	81.6	83.3
	Meath	85.7	81.4
	CHO 8 Total	**88.8**	**87.6**
CHO 9	Dublin North West	86.1	87.4
	Dublin North Central	84.9	86.5
	Dublin North	82.7	81.4
	CHO 9 Total	**84.4**	**84.6**
National Average		**88.9**	**87.7**

Source: Health Protection Surveillance Centre (HPSC)

Notes:
(i) Data refers to MenCb uptake which is uptake at 24 months of age of one dose of vaccine against meningococcal group C given on or after 12 months of age.
(ii) HSE IT systems suffered a ransomware cyber-attack on 14 May 2021. As a result, local immunisation databases were not available for a period and some caution is required in interpreting data for 2021.

Immunisation for influenza for persons aged 65 years and older

Definition

Percentage of people 65 years and older who have been vaccinated against influenza[1,2].

Description

Seasonal influenza is an acute respiratory infection caused by influenza viruses which circulate in all parts of the world. Most people with the illness recover quickly, but elderly people and those with chronic medical conditions, (e.g., chronic obstructive pulmonary disease (COPD)), are at higher risk of complications. Influenza can also have a major impact on health services particularly during the winter season.

Vaccines provide a safe way of preventing influenza and have been shown to reduce the risk of death by up to 55% among healthy older adults, as well as reducing the risk of hospitalisation by between 32% and 49% among older adults [4], [5]. In 2003, countries participating in the World Health Assembly, including Ireland, committed to the goal of attaining vaccination coverage of the elderly population of at least 50% by 2006 and 75% by 2010 [6]. In Ireland the target for influenza vaccination in the population group aged 65 years and older is 75% [7].

It is recommended that other vulnerable patients such as pregnant women and those with long term health conditions are also vaccinated. Vaccination is also recommended for children aged 2 - 17 years.

People are encouraged to avail of influenza vaccination in late September/early October each year. Vaccination uptake is measured from September of one year to August of the following year, rather than by calendar year, for example 2020-2021 refers to the vaccination uptake between September 2020 and August 2021. This provides a more accurate measurement for each flu/influenza season.

Rationale for the inclusion of indicator

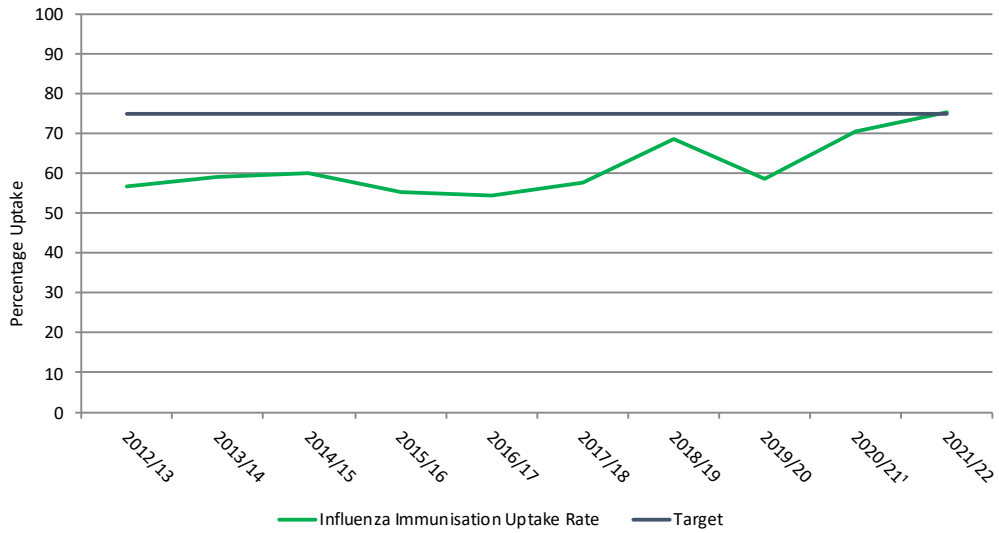
Influenza represents a large burden of disease worldwide and in Ireland. Influenza is a common infectious disease that affects between 5% and 15% of the population each year worldwide [8]. Research by the HSE Health Protection Surveillance Centre, estimated that between 400-800 excess (additional) deaths may be due to influenza in Ireland each season, and between 1,000-1,200 excess (additional) deaths due to influenza could occur in a particularly severe influenza season. The majority of deaths occur in people aged 65 years and older [9].

Commentary

- The national trend data shows that the target of 75% was reached for the first time in the 2021/22 season. The uptake rate was at 58.9% in the 2019/2020 season but increased to 70.5% in the 2020/2021 season and 75.4% in the 2021/22 season (the highest it has been over the ten-year period).
- Figure 1.6 shows data as published by the OECD. Final data for the uptake rate in 2021/2022 was not available in early 2021 when Ireland had to submit data to the OECD. The provisional rate available at the time (70.7%) was well above the average rate for OECD countries which was 51.2%.

1 Prior to 2020 data refers to persons aged 65 years and older with a medical or GP visit card, from 2020 onwards, data refers to all persons aged 65 years and older. From 2020, the influenza vaccine became available free of charge to all persons aged 65 years and over.
2 This indicator relates to the number of persons aged 65 years and over who have received the influenza vaccine from a GP or from a pharmacist. HPSC's Report on the Uptake of the Influenza Vaccine for Health Care Workers (HCWs) and residents in Long-Term Care Residential Facilities (LTCFs) 2020-2021 Season includes data on uptake for residents in long-term care facilities.

Figure 1.5: Percentage of influenza immunisation uptake in the population 65 years and older, 2012/13-2021/22

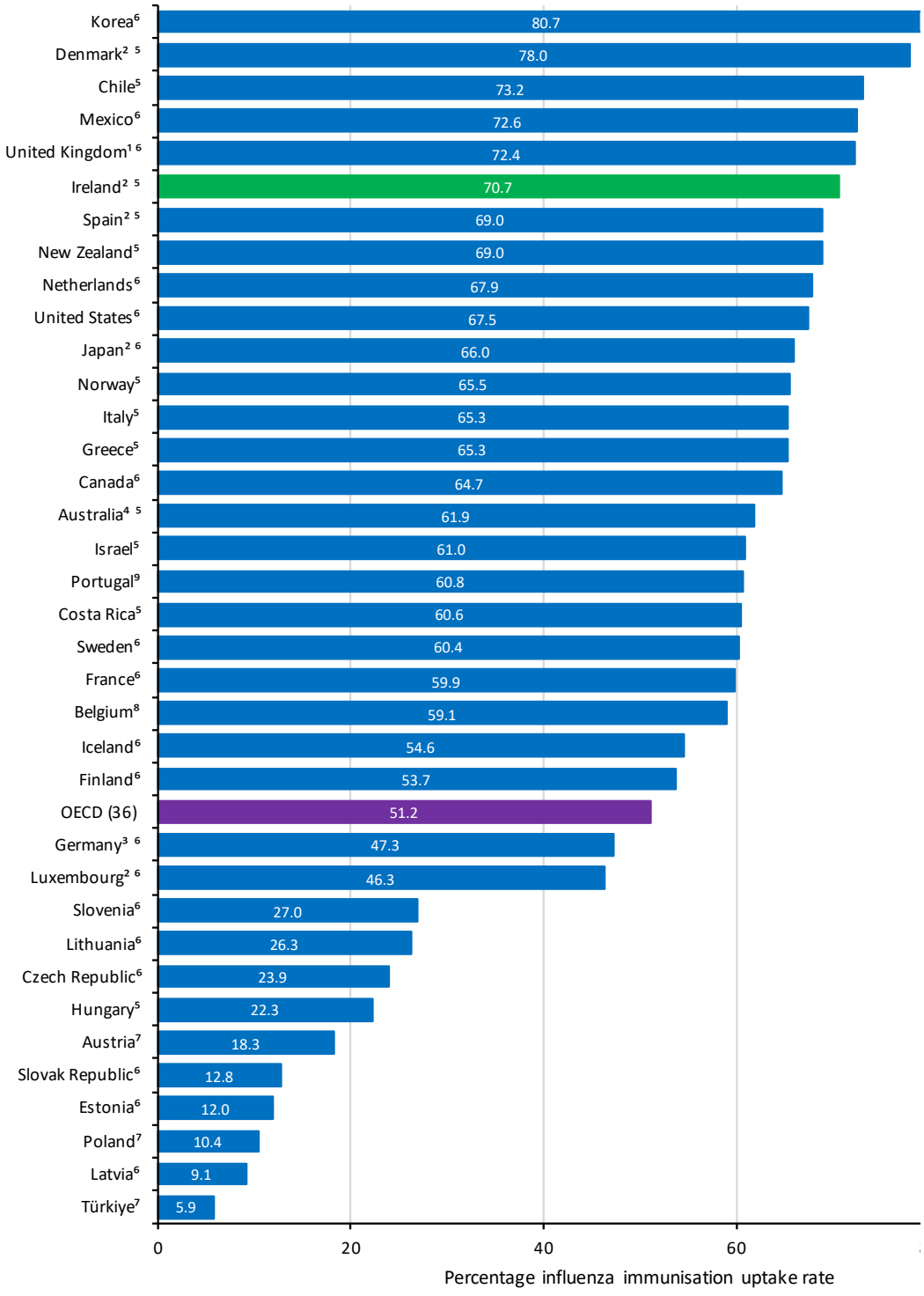


[1] Break in series: Prior to 2020 data refers to persons aged 65 years and older with a medical or GP visit card, from 2020 onwards, data refers to all persons aged 65 years and older.

Source: Health Protection Surveillance Centre (HPSC).

Notes:
(i) Data refers to the influenza season from September-August.
(ii) For seasons prior to 2020, influenza vaccine data relate to paid claims for influenza vaccine reimbursement for medical card holders and GP Visit Card holders aged 65 years old and over (80.7% of those aged 65 and over were medical and GP visit card holders in 2019). From 2020, the influenza vaccine became available free of charge to all persons aged 65 years and over. For the 2020/2021 season onwards, CSO population estimates are used as the denominator.

Figure 1.6: Immunisation for influenza in populations aged 65 and over for selected OECD countries, 2021 (or nearest year)



[1] Estimated value; [2] Provisional value; [3] Difference in methodology; [4] Break in series, [5] 2021; [6] 2020; [7] 2019; [8] 2018; [9] 2017

Source: OECD Health Statistics

Notes: Differences in coding practices and definitions among countries may affect the comparability of data.

Immunisation rate for influenza among healthcare workers in hospitals

Definition

Percentage of healthcare workers (HCW's) in hospitals[3], who have been vaccinated against seasonal influenza.

Description

Influenza is a common infectious disease that affects between 5% and 15% of the population each year [8]. Most people with the illness recover quickly, but elderly people and those with chronic medical conditions, (e.g. chronic obstructive pulmonary disease (COPD)), are at higher risk of complications. Influenza can also have a major impact on health services particularly during the winter season.

Every year influenza vaccine is offered to HCW's both to protect themselves and to prevent the spread of flu to vulnerable patients and to staff. At least 20% of HCWs are infected with influenza every year and many HCWs continue to work despite being ill, which increases the risk of influenza to their colleagues and patients. During hospitalisation, patients are up to 35 times more likely to acquire influenza if exposed to infected patients or HCWs [10]. Vaccination of HCWs has been shown to reduce flu-related deaths by up to 40%. Since the 2019/2020 flu season, the HSE aims to achieve a target of 75% influenza vaccine uptake among healthcare workers.

People are encouraged to avail of influenza vaccination in late September/early October each year. Vaccination uptake is measured from September of one year to August of the following year, rather than by calendar year, for example 2020-2021 refers to the vaccination uptake between September 2020 and August 2021.

Rationale for the inclusion of indicator

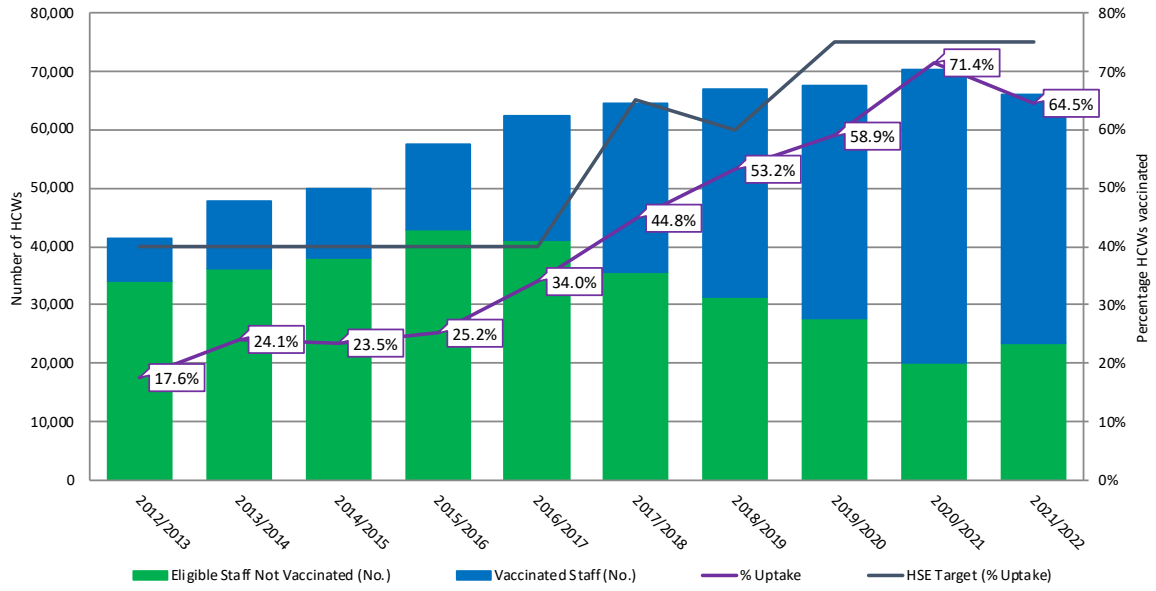
Influenza represents a large burden of disease worldwide and in Ireland. As people who have regular contact with vulnerable populations, HCW's are at greater risk for infection and exposure and may be potential sources of infection for their patients. Influenza is a common infectious disease that affects between 5% and 15% of the population each year worldwide [8]. It has been estimated that between 200 and 500 people, mainly older people, die from influenza each winter in Ireland.

Commentary

- The percentage of HCW's vaccinated against influenza in public hospitals increased annually between the 2015/2016 season and the 2020/2021 season but there was a decrease in uptake observed in the 2021/2022 season. The rate has largely remained below the national target over the last ten flu seasons, however, it is worth noting that the target has increased from 40% to 75% during this time (75% target since 2019/2020). There was a notable increase in the uptake rate in 2020/2021 (71.4%) in comparison to 2019/2020 (58.9%), however, uptake fell to 64.5% for the 2021/2022 season.
- Uptake across all staff categories in public hospitals varied with uptake for medical and dental staff exceeding the 75% target in both 2020/2021 (77.9%) and 2021/2022 (78.8%).
- Uptake varied substantially across hospitals. Twenty hospitals exceeded the 75% target in 2020/2021 but only three exceeded the target in 2021/2022. The RCSI Hospital Group achieved the highest immunisation rate for the 2020/2021 season at 83%. Although some individual hospitals met the 75% target for the 2021/2022 season, no Hospital Group met the target.

3 HPSC's Report on the Uptake of the Influenza Vaccine for Health Care Workers (HCW's) and residents in Long-Term Care Residential Facilities (LTCF's) 2020-2021 Season includes data on uptake for healthcare workers in hospitals and long-term care facilities.

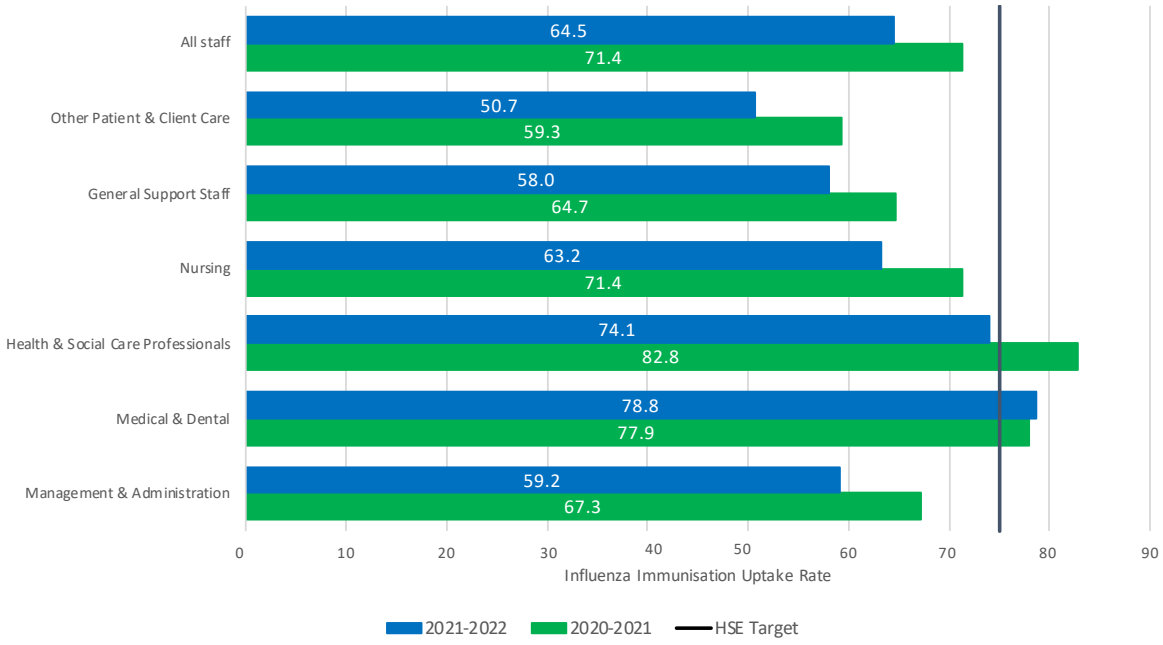
Figure 1.7: Immunisation for influenza among healthcare workers in HSE-funded hospitals, 2012/2013-2021/2022



Source: Health Protection Surveillance Centre (HPSC).

Notes:
(i) Only data from public (HSE funded, managed, and staffed) hospitals are included in this chart. The number of reporting hospitals differs each year (lowest in the 2012/13 season at 32 and highest in the 2018/19 season at 51). In the latest season, 44 hospitals reported data.
(ii) Based on complete returns only, figures accurate as of August 2022.

Figure 1.8: Immunisation against influenza among healthcare workers by staff category in HSE-funded hospitals, 2021/2022



Source: Health Protection Surveillance Centre (HPSC).

Notes:
(i) Only data from public (HSE funded, managed and staffed) hospitals is included in this chart. The number of reporting hospitals differs each year (lowest in the 2012/13 season at 32 and highest in the 2018/19 season at 51). In the latest season, 44 hospitals reported data.
(ii) Based on complete returns only, figures accurate as of August 2022.

Table 1.3: Immunisation for influenza among healthcare workers in hospitals by hospital group and hospital, 2020/21 – 2021/2022

Hospital Group	2020/21		2021/22	
	Total Eligible	% Uptake	Total Eligible	% Uptake
Ireland East	**14,171**	**77.5**	**15,184**	**68.7**
Cappagh National Orthopaedic Hospital, Dublin	493	77.3	67	60.3
Mater Misericordiae University Hospital	4,194	72.0	4,191	74.8
Midland Regional Hospital Mullingar	1,083	72.6	1,060	65.7
National Maternity Hospital, Holles Street	956	82.7	945	71.4
Our Lady's Hospital, Navan	659	78.8	672	67.3
Royal Victoria Eye & Ear Hospital, Dublin	335	76.4	333	71.5
St. Columcille's Hospital, Loughlinstown	509	77.0	517	70.2
St. Luke's General Hospital, Kilkenny	1,281	82.0	1,180	68.2
St. Michael's Hospital, Dun Laoghaire	472	72.7	421	73.4
St. Vincent's University Hospital	3,047	81.2	4,089	62.2
Wexford General Hospital	1,142	84.9	1,209	72.0
Dublin Midlands	**11,434**	**72.3**	**12,661**	**71.8**
Coombe Women & Infants University Hospital	-	-	950	71.6
Midland Regional Hospital Portlaoise	1,060	53.7	852	63.0
Midland Regional Hospital Tullamore	1,271	64.0	1,282	61.5
Naas General Hospital	940	66.1	873	69.3
St. James's Hospital	4,692	77.6	5,184	74.8
St. Luke's Hospital, Dublin	565	74.3	580	65.3
Tallaght University Hospital	2,906	76.0	2,940	75.6
RCSI Hospitals	**10,852**	**83.0**	**11,443**	**67.2**
Beaumont Hospital	4,104	87.1	4,360	59.1
Cavan General Hospital	1,279	70.5	1,260	64.3
Connolly Hospital Blanchardstown	1,518	75.4	1,600	57.1
Louth County Hospital, Dundalk	317	71.9	359	49.9
Monaghan General Hospital	122	81.1	155	61.3
Our Lady of Lourdes Hospital, Drogheda	2,491	89.2	2,656	91.6
UL Hospitals	**4,958**	**60.1**	**574**	**47.6**
Croom Orthopaedic Hospital	193	62.2	-	-
St. John's Hospital, Limerick	361	67.6	-	-
UL Hospitals Ennis	265	59.2	276	48.2
UL Hospitals Nenagh	291	67.4	298	47.0
University Hospital Limerick	3,406	57.3	-	-
University Maternity Hospital Limerick	442	69.9	-	-
South / South West	**12,774**	**70.3**	**13,335**	**62.5**
Bantry General Hospital	327	75.2	342	56.7
Cork University Hospital (ex. maternity)	4,209	67.8	4,468	61.6
Cork University Hospital Maternity	687	73.2	733	61.5
Kilcreene Orthopaedic Hospital, Kilkenny	84	59.5	83	37.3
Mallow General Hospital	286	74.8	298	67.8
Mercy University Hospital, Cork	1,405	73.2	1,492	66.8
South Infirmary - Victoria University Hospital, Cork	1,005	60.5	1,028	56.5
South Tipperary General Hospital, Clonmel	1,091	66.8	1,246	71.7
University Hospital Kerry	1,400	61.6	1,457	52.0
University Hospital Waterford	2,280	82.5	2,188	67.0

Table 1.3 contd.

Hospital Group	2020/21		2021/22	
	Total Eligible	% Uptake	Total Eligible	% Uptake
Saolta	**11,111**	**55.1**	**12,082**	**52.0**
Galway University Hospitals	4,363	59.2	4,750	54.4
Letterkenny University Hospital	2,003	34.7	2,303	47.1
Mayo University Hospital	1,386	50.9	1,521	44.8
Portiuncula University Hospital	966	62.6	901	76.4
Roscommon University Hospital	391	59.8	440	53.6
Sligo University Hospital	2,002	65.0	2,167	46.5
Children's Health Ireland	**3,868**	**77.6**	-	-
Children's University Hospital, Temple Street Dublin	1,475	80.1	-	-
Children's Health Ireland at Crumlin	2,393	76.1	-	-
Other	**1,095**	**77.1**	**668**	**66.5**
National Rehabilitation Hospital, Dún Laoghaire	1,095	77.1	668	66.5
Private	**2,542**	**60.3**	**3,210**	**54.6**
Blackrock Clinic, Co. Dublin	-	-	1,134	64.4
Bon Secours Hospital, Cork	1,318	66.5	1,448	51.6
Bon Secours Hospital, Glasnevin, Dublin	639	52.6	-	-
Bon Secours Hospital, Tralee	585	54.5	628	44.1
Total for All Hospitals[1]	**72,805**	**71.0**	**69,157**	**64.0**

[1] The total includes a number of participating private hospitals and therefore differs from the uptake rate for HSE-funded hospitals only presented in Figure 1.7.

Source: Health Protection Surveillance Centre (HPSC).

Notes:
(i) Based on complete returns only, figures accurate as of August 2022.
(ii) For the 2020/21 season: Children's Hospital Ireland (Tallaght University Hospital (paediatric) Unit) and Coombe Women & Infants University Hospital, Dublin did not provide a complete return in 2020-2021 season and are not included.
(iii) For 2021/22 season, no returns submitted by the Children's Health Ireland hospital group. Returns for four of the hospitals in the UL hospital group were not available, but the group did provide an overall uptake figure of 51.8% (n=2543/4910). The 2021/22 uptake rate in the Table for the UL hospital group (47.6%) is based on data from completed hospital returns only.

Immunisation rate for human papillomavirus (HPV) vaccine

Definition

Percentage of children (girls and boys) in first year of second level schools and their age equivalents who have received at least Stage 2 (2 doses) of the HPV vaccine.

Description

The human papillomavirus (HPV) is the most common sexually transmitted virus worldwide. HPV causes 1 in 20 cancers worldwide. It is one of the leading causes of cervical cancer. The HPV virus also causes 5 out of 10 vulval cancers, 7 out of 10 vaginal cancers, 9 out of 10 HPV-related anal cancers and 9 out of 10 incidences of genital warts [11].

The HPV vaccine protects against the types of HPV that cause 9 out of 10 cervical cancers. The HPV vaccine has greatly reduced cases of pre-cancers of the cervix in young women in many countries including Australia, Sweden, the US and the UK. In countries where the HPV vaccine is used, the number of cases of genital warts has decreased dramatically in both young women and men.

Over 120 countries now have a HPV vaccine programme, with more than 30 of these countries giving the vaccine to boys and girls. These countries include the UK, US, Australia, and New Zealand. To date, over 100 million people have been vaccinated with HPV vaccine worldwide including over 350,000 people in Ireland. Research conducted all over the world has shown that it is safe and prevents cancer. The introduction of a HPV immunisation programme in Australia in 2007, for example, led to a 90% reduction of HPV 6, 11, 16 & 18 infection, a 45% reduction in low-grade pre- cancerous growths and an 85% reduction in high-grade precancerous growths [12].

The vaccine was licensed in 2006 in Ireland. The HPV vaccine has been offered to girls in their first year of secondary school since 2010. This is because the most common cancer caused by the HPV virus is cervical cancer which only affects women. Following recommendations from the National Immunisation Advisory Committee (NIAC), the Minister for Health introduced HPV vaccine into the national immunisation programme from September 2019 for all students (boys and girls) in first year of second level school as part of the national strategy to prevent cancers attributable to HPV.

Vaccination uptake is measured from September of one year to August of the following year, rather than by calendar year, for example 2019-2020 refers to the vaccination uptake between September 2019 and August 2020. This is to align with the academic year.

The current national target is that at least 85% of children (boys and girls) who are offered this vaccine will complete the required 2 dose schedule.

Rationale for the inclusion of indicator

HPV is very common - most people will be infected with a form of HPV in their lifetime. HPV infection is most common in people in their late teens and early 20s. HPV causes 1 in 20 cancers worldwide.

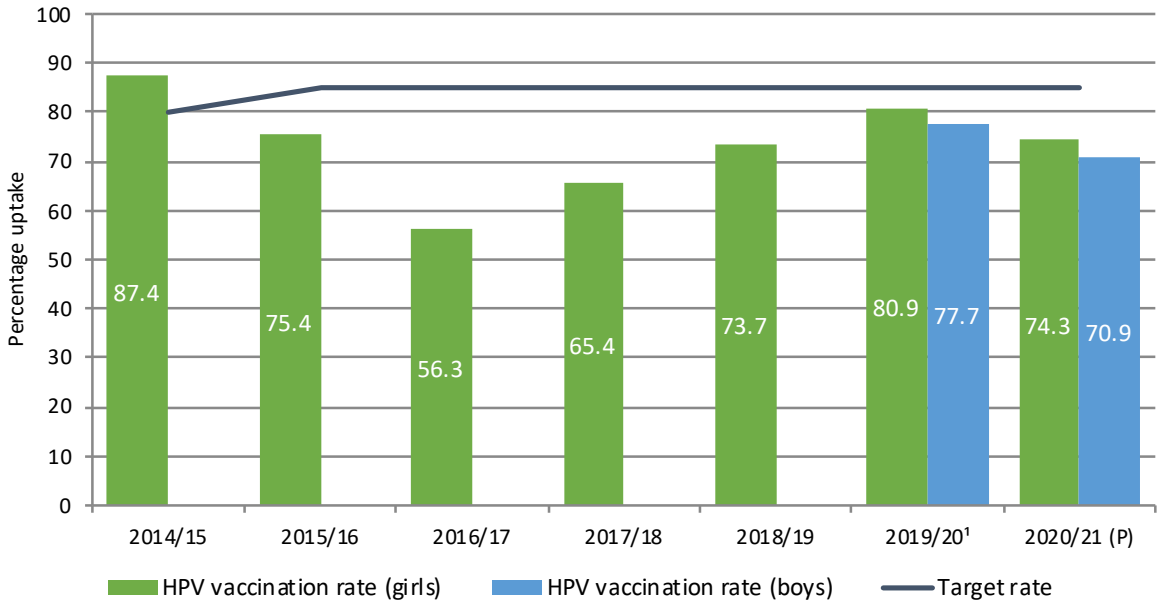
Each year in Ireland:
- HPV causes 406 cancers in both women and men
- over 6,500 women need hospital treatment for pre-cancer of the cervix
- 300 women get cervical cancer
- 90 women die from cervical cancer [11]

Commentary

- The HPV vaccine has been offered to girls since 2010. Between 2016/2017 and 2019/2020, there was a year-on-year increase in the uptake rate for girls from 56.3% in 2016/2017, to 80.9% in 2019/2020. The uptake rate (provisional) for 2020/21 for girls declined to 74.3%.
- The HPV vaccine was offered to boys for the first time during the 2019/2020 academic year. The uptake rate for boys in 2019/2020 was 77.7%, this decreased to 70.9% in 2020/2021 (provisional data). The uptake rate was lower for boys than girls in 2019/2020 and 2020/2021.

- At a national level, the immunisation rate for HPV for children (girls and boys) for the academic year 2020/2021 was 74.2% (below the 85% target). The uptake rate varied across Community Health Organisations (CHOs) from 68.5% in CHO 8 to 81.1% in CHO 4 2020/2021 data is provisional and not complete for all Local Health Offices (LHOs). Although uptake was below target at national and Community Health Organisation level, the target was met across a number of LHOs.
- On 12th March 2020, the government introduced measures as part of the national effort to interrupt the transmission of COVID-19. There were challenges delivering the immunisations to schools during the COVID-19 pandemic (i.e., the impact of school closures, lack of suitable space to deliver vaccines once schools reopened). There were also challenges to entering the vaccination records into the database as a result of staff redeployment (e.g., to COVID-19 testing and COVID-19 vaccination work). Further investigation is required to understand the full impact of these factors on the uptake rate for 2020/2021.

Figure 1.9: Immunisation rate for HPV vaccine in first year of second level school and their age equivalents, including children in this cohort but vaccinated outside the academic year, academic years 2014/2015 - 2020/2021 (boys from 2019/2020 onwards)

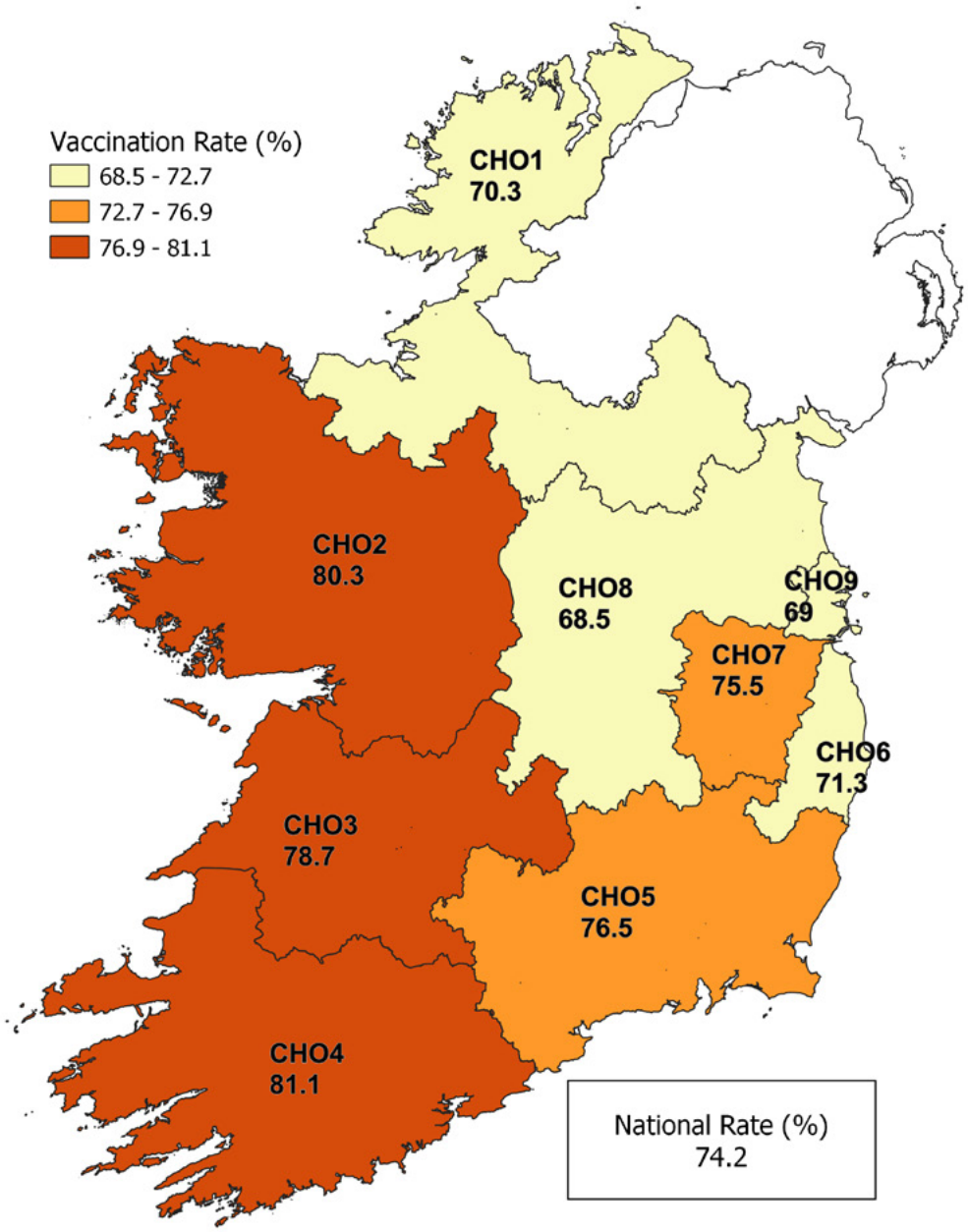


[1] In the 2019/2020 academic year the HPV vaccination programme was extended to boys. As the denominator on the School Immunisation System (SIS) is not currently available by gender, for those in special schools and homeschooled in 2019/20 and 2020/21 uptake rates for males/females in 2019/2020 and 2020/2021 do not include homeschooled children or children in special schools.

Source: Health Protection Surveillance Centre (HPSC).

Notes:
(i) Data refer to children in first year in second level schools and their age equivalents in special schools and home schooled who were recorded as having received at least HPV stage 2 (considered to have completed two dose course), including children in this cohort but vaccinated outside the academic year. Data by sex for 2019/20 and 2020/2021 do not include homeschooled children or children in special schools
(ii) Uptake rate data for previous academic years may differ from previous NHQRS reports as it is based on the latest data published by HPSC. For 2019/2020 and 2020/2021 data was extracted in June 2022, for prior years data was extracted in December 2020.
(iii) Data for 2020/21 is provisional as data entry for 2020/21 is not complete for all Local Health Offices.

Figure 1.10: Immunisation rate for HPV vaccine for children (girls and boys) in first year of second level school and their age equivalents, including children in this cohort but vaccinated outside the academic year, by Community Health Organisation (CHO), for academic year 2020/2021



Source: Health Protection Surveillance Centre (HPSC).

Table 1.4: Immunisation rate for HPV vaccine in first year of second level school, including children in this cohort but vaccinated outside the academic year, by Community Health Organisation and Local Health Office, for academic years 2018/2019 – 2020/2021

		Academic Year 2018/19	Academic Year 2019/20		Academic Year 2020/21	
Community Health Organisation	Local Health Office	HPV uptake among girls (%)	HPV uptake among girls (%)	HPV uptake among boys (%)	HPV uptake among girls (%)	HPV uptake among boys (%)
CHO 1	Cavan/Monaghan	77.1	82.1	76.3	65.9	74.4
	Donegal	63.2	76.2	73.2	69.9	66.7
	Sligo/Leitrim	72.3	77.2	76.0	76.4	70.9
	CHO 1 Total	**70.2**	**78.5**	**75.0**	**70.0**	**70.4**
CHO 2	Galway	79.6	85.3	80.4	83.9	78.1
	Mayo	74.8	81.0	79.1	80.5	79.7
	Roscommon	72.4	78.1	75.7	75.7	74.6
	CHO 2 Total	**77.3**	**83.2**	**79.5**	**81.9**	**78.1**
CHO 3	Clare	81.0	86.6	85.9	84.0	78.8
	Limerick	66.7	78.9	74.6	77.5	74.8
	Tipperary North/East Limerick	78.0	86.9	82.9	79.3	73.6
	CHO 3 Total	**74.4**	**83.9**	**80.6**	**79.9**	**75.5**
CHO 4	North Cork	66.4	78.2	73.6	78.2	76.1
	North South Lee	74.0	82.4	76.3	83.9	79.7
	West Cork	75.2	81.3	79.9	80.0	80.6
	Kerry	75.6	82.8	82.9	84.7	83.1
	CHO 4 Total	**72.1**	**78.3**	**75.1**	**85.4**	**79.9**
CHO 5	Carlow/Kilkenny	81.5	83.0	82.1	78.3	82.9
	Tipperary South	69.3	79.2	77.1	77.1	74.0
	Waterford	74.4	80.8	76.8	80.4	74.6
	Wexford	68.1	72.3	70.6	76.3	68.5
	CHO 5 Total	**73.7**	**78.5**	**76.5**	**78.0**	**74.9**
CHO 6	Dublin South	82.4	84.7	86.2	9.3	7.5
	Dublin South East	85.9	89.4	88.0	90.2	91.8
	Wicklow	78.9	86.4	80.7	83.6	78.8
	CHO 6 Total	**82.2**	**86.6**	**84.7**	**57.7**	**52.1**
CHO 7	Dublin South City	83.1	87.6	87.3	85.5	81.4
	Dublin South West	63.8	75.0	69.1	68.5	66.8
	Dublin West	66.7	78.0	73.2	71.1	68.3
	Kildare/West Wicklow	75.2	85.1	82.9	77.0	76.0
	CHO 7 Total	**72.8**	**82.0**	**78.6**	**75.6**	**73.4**
CHO 8	Laois/Offaly	77.5	83.4	77.6	68.1	61.6
	Longford/Westmeath	72.1	79.0	75.1	58.6	54.9
	Louth	68.1	77.6	73.8	69.3	61.3
	Meath	76.0	81.2	78.9	74.4	69.0
	CHO 8 Total	**73.6**	**80.4**	**76.5**	**68.2**	**62.3**
CHO 9	Dublin North West	68.4	78.9	77.0	76.5	72.9
	Dublin North Central	71.4	78.4	73.2	73.3	67.5
	Dublin North	70.2	72.4	66.7	63.1	60.5
	CHO 9 Total	**69.6**	**76.5**	**72.6**	**71.1**	**67.4**
National Average		73.7	80.9	77.7	74.3	70.9

Source: Health Protection Surveillance Centre (HPSC)

Notes:
(i) Data refer to first year children in second level schools and their age equivalents in special schools and home schooled who were recorded as having received at least HPV stage 2 (considered to have completed two dose course), including children in this cohort but vaccinated outside the academic year.
(ii) In the 2019/2020 academic year the HPV vaccination programme was extended to boys. As the denominator on the School Immunisation System (SIS) is not currently available by gender for those in special schools and home schooled in 2019/20 and 2020/21 uptake rates for males/females in 2019/20 and 2020/21 do not include home-schooled children or children in special schools.
(iii) Data for 2020/2021 is provisional as data entry for 2020/2021 is not complete for all Local Health Offices.

Screening uptake rate for breast cancer

Definition
Percentage uptake of breast screening by eligible women in the population.

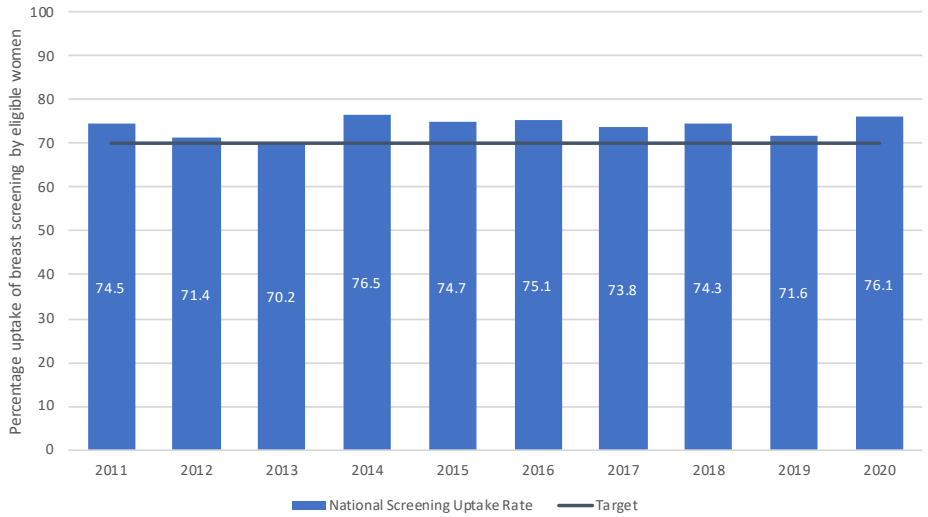
Description
Breast cancer is the most common form of cancer in women. One in nine women will develop breast cancer at some point in their life and one in 30 will die from the disease. Breast screening is where a mammogram (an x-ray of the breast) is taken to look for signs of early breast cancer. In Ireland, the National Screening Service BreastCheck programme invites women between the ages of 50 and 69 years for a free mammogram every two years. The upper age limit for the BreastCheck programme was 64 years but it began an age-range extension in 2016. At the start of 2021, the age range extension was complete and the age range of eligible women is now 50-69 years.

The target uptake rate in Ireland is 70%.

Rationale for the inclusion of indicator
Over 3,000 patients were diagnosed with invasive breast cancer each year during 2014-2020. This represents almost one third of all major malignancies diagnosed in women.

Commentary
- Over the past ten years, the uptake of breast cancer screening by those eligible has remained above the target of 70% with a rate of 76.1% in 2020. In 2019 the uptake rate was 71.6%, this increased to 76.1% in 2020.
- All counties are above the national target of 70% for the period from 01 January 2018 to 31 December 2019, with the exception of three counties which are over 69.5%.
- Ireland's rate of uptake for breast screening (76.1% - 2020 data) was higher than the OECD average of 58.2%. However, it should be noted that there may be differences in scheduling and eligibility for breast screening programmes in different countries and this needs to be taken into account when comparing uptake levels for screening programmes.
- In March 2020, screening services were paused due to the global COVID-19 pandemic. Studies are underway to examine the impact of the pandemic on population-based breast screening in Ireland.

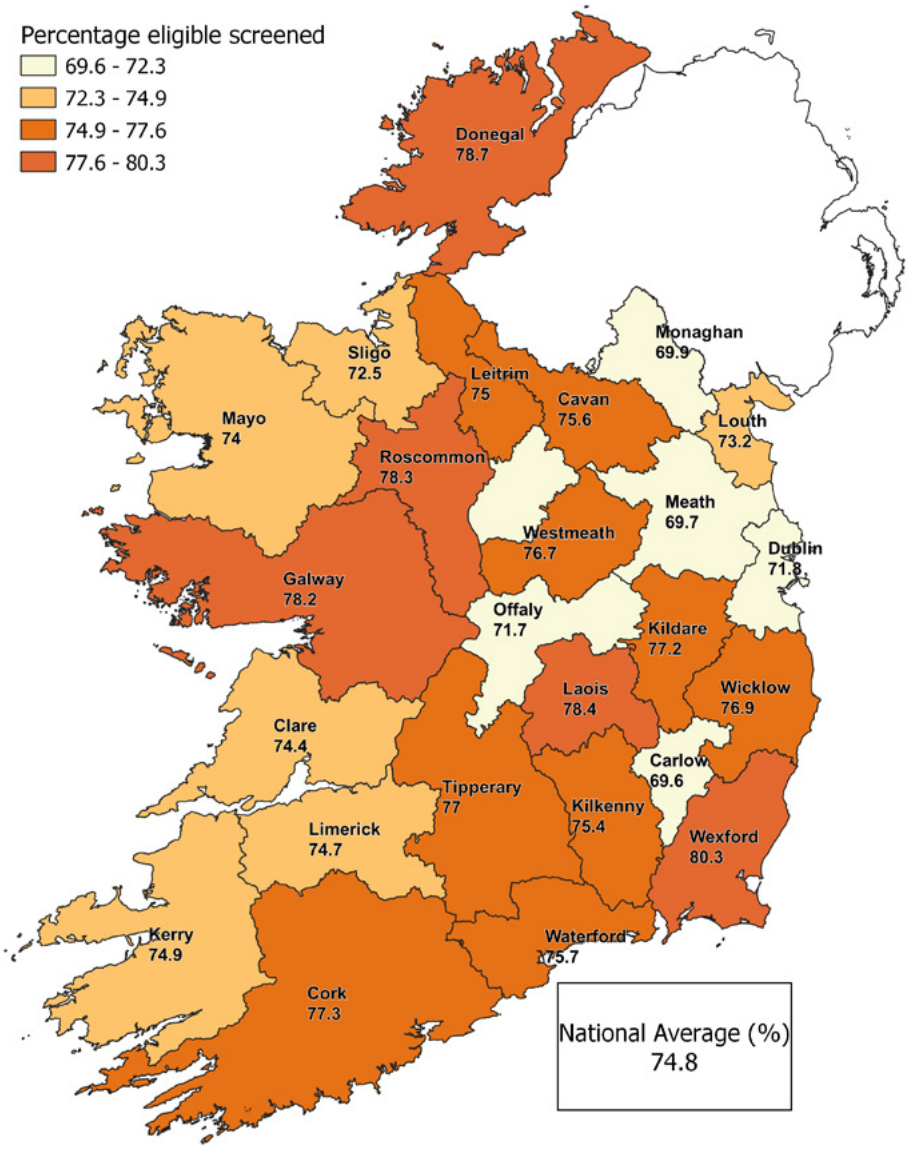
Figure 1.11: Uptake of breast screening by the eligible population, 2011-2020



Source: National Screening Service

Notes:
(i) The eligible population refers to the known target population (women of screening age that are known to the programme) less those women excluded or suspended by the programme based on certain eligibility criteria.
(ii) Data is provisional for 2020.

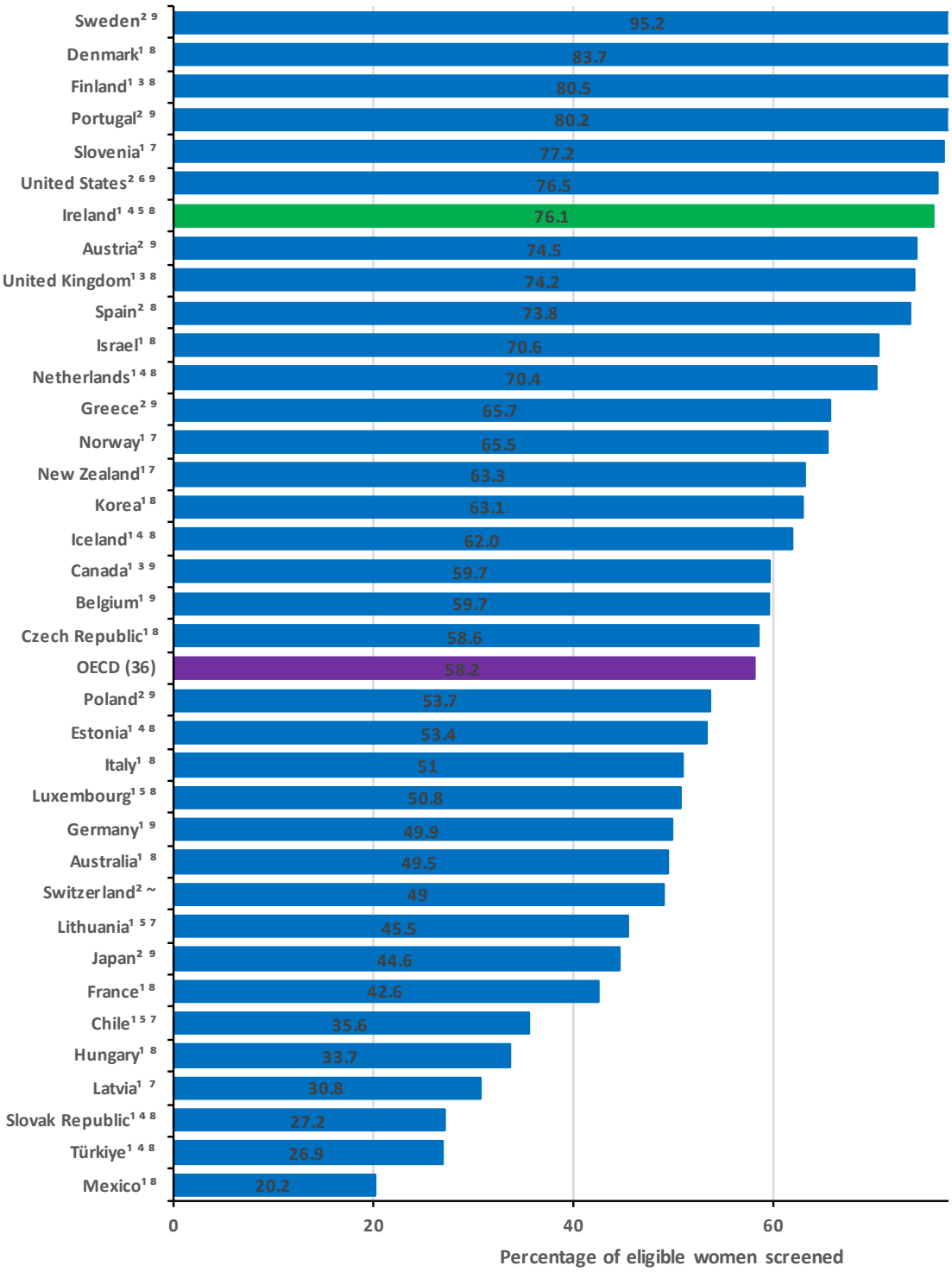
Figure 1.12: Percentage of eligible women screened by county of residence for the period 1st January 2018 – 31st December 2019



Source: National Screening Service

Notes:
The National Average here is a weighted average of county rates. County rates do not include adjustments for women who deconsent from the programme or are suspended or excluded from the programme due to certain eligibility criteria. Such adjustments are made when calculating the annual national rate presented in the previous time series chart. Direct comparison is therefore not possible.

Figure 1.13: Uptake of breast screening in women aged 50 to 69 in OECD countries, 2021 (or nearest year)



[1] Programme data; [2] Survey data; [3] Estimated value; [4] Different methodology; [5] Provisional value; [6] Break in series, [7] 2021; [8] 2020; [9] 2019; ~ 2017.

Source: OECD Health Statistics

Notes:
Screening rates reflect the proportion of women who are eligible for a screening test and receive the test. Some countries ascertain screening based on surveys and others based on encounter data, which may influence the results. Survey-based results may be affected by recall bias. Programme data are often calculated for monitoring national screening programmes, and differences in target population and screening frequency may also lead to variations in screening coverage across countries.

Screening coverage rate for cervical cancer

Definition

The proportion of the eligible population who had a satisfactory[4] cervical screening test within a five-year time period.

Description

Cervical cells change slowly and take many years to develop into cancer cells, making cervical cancer a preventable disease and having regular cervical screening tests to pick up any early cell changes (precancerous growths) can significantly reduce the risk of cervical cancer.

In Ireland all women and people with a cervix aged 25 to 65 years can avail of CervicalCheck, Ireland's national cervical screening programme. The programme operates both an invitation entry system whereby an eligible woman receives an invitation letter, and "direct entry" whereby sample takers (e.g., general practitioner (GP), practice nurse) can directly screen eligible women.

Until March 2020, routine screening every 3 or 5 years depending on age was recommended for women whose previous cervical screening test results did not detect abnormal cells.

On March 30, 2020 CervicalCheck introduced the HPV test as the primary screening method for the detection of the HPV (human papillomavirus) virus which is a risk factor for cervical cancer. This policy change was recommended in a HTA by HIQA in 2017 and was made after approval by the Department of Health. This brings the Irish cervical screening programme in line with international best practice in cervical screening.

Under HPV cervical screening, women and people with a cervix aged 25 to 65 are screened. If their sample tests positive for HPV, it is also tested for cell changes. If they do not have high-risk HPV their sample will not be looked at for cell changes. This is because it is unlikely that they will develop cell changes or cancer without having high-risk HPV. HPV screening is better at predicting cervical cancer risk than the smear test.

Cervical screening aims to prevent the most common form of cervical cancer – which is squamous cell cancer – and 99% of those cancers are caused by 14 high-risk types of HPV. Two of these high-risk types cause 7 out of 10 cervical cancers.Therefore, it is not supported by evidence that cytology (screening tests) will be offered by the programme when women are found to be HPV negative. CervicalCheck aims to reach a target five-year coverage of 80%.

Rationale for the inclusion of indicator

Every year in Ireland approximately 300 women are diagnosed with cervical cancer and 90 women die from it. Cervical cancer is the second most common cause of death due to cancer in women aged 25 to 39 years.

Notes of measurement changes for five-year coverage of the cervical screening programme

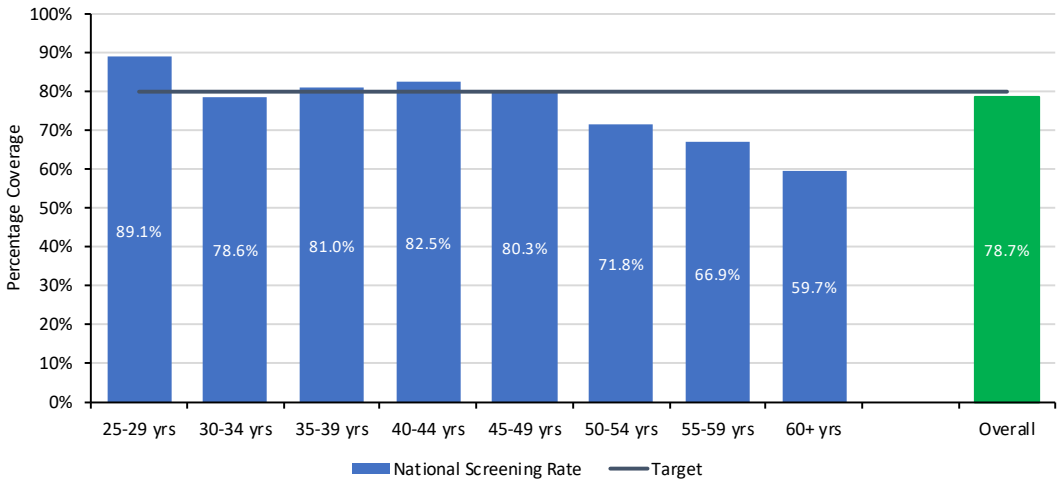
Cervical cancer screening coverage is normally measured from September of one year to August of the following year, rather than by calendar year, for example 2016-2017 refers to the uptake between 1st September 2016 and 31st August 2017. In March 2020 CervicalCheck introduced the HPV test as the primary screening method, replacing primary cytology screening. The latest five-year period therefore covers September 2015 to March 2020 (instead of September - August as reported in previous NHQRS reports).

Commentary

- The coverage of CervicalCheck for the five-year period from September 2015 to March 2020[5], was 78.7%, slightly below the 80% target. The national target of 80% uptake rate was achieved by women in the following age groups: 25 to 29, 35 to 39, 40 to 44 and 45 to 49.
- At a county level, screening uptake rates 2015-2020 ranged from 69% in Laois to 87.7% in Carlow. Seven counties achieved the 80% target coverage for the time period.
- Ireland's rate of uptake for cervical screening (71.7% - 2020 data) was higher than the OECD average (59.4%). However, it should be noted that there may be differences in scheduling and eligibility for cervical screening programmes in different countries and this needs to be taken into account in comparing uptake levels for screening programmes.

4 Satisfactory screening tests refer to those that had a sufficient number of cells within the test sample to allow for testing to be completed.
5 In March 2020, screening services were paused due to the global COVID-19 pandemic. The CervicalCheck Programme was paused during April, May and June 2020. Cervical screening data included in this year's NHQRS report largely pre-dates the COVID-19 pandemic. The impact of the pandemic will likely be seen in future NHQRS reports.

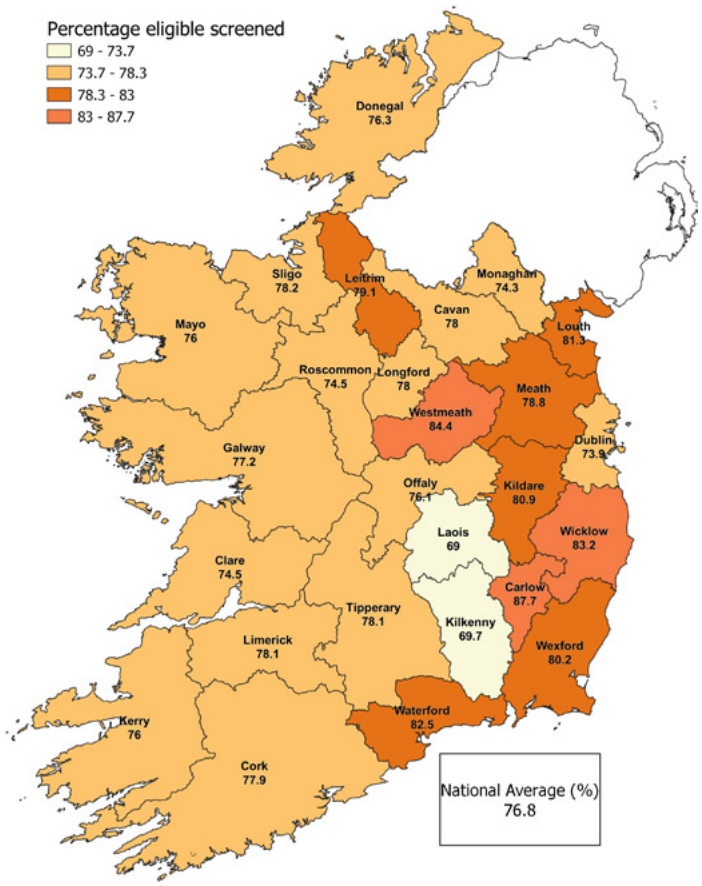
Figure 1.14: Five-year coverage of the cervical screening programme in Ireland by age group, 1st September 2015-31st March 2020



Source: National Screening Service

Notes:
(i) The national coverage of eligible women for the 5-year periods by 5-year age group has been adjusted for women who have had a hysterectomy.
(ii) In March 2020 CervicalCheck introduced the HPV test as the primary screening method, replacing primary cytology screening. The latest five-year period therefore covers September 2015 to March 2020 (instead of September - August as reported in previous NHQRS reports).

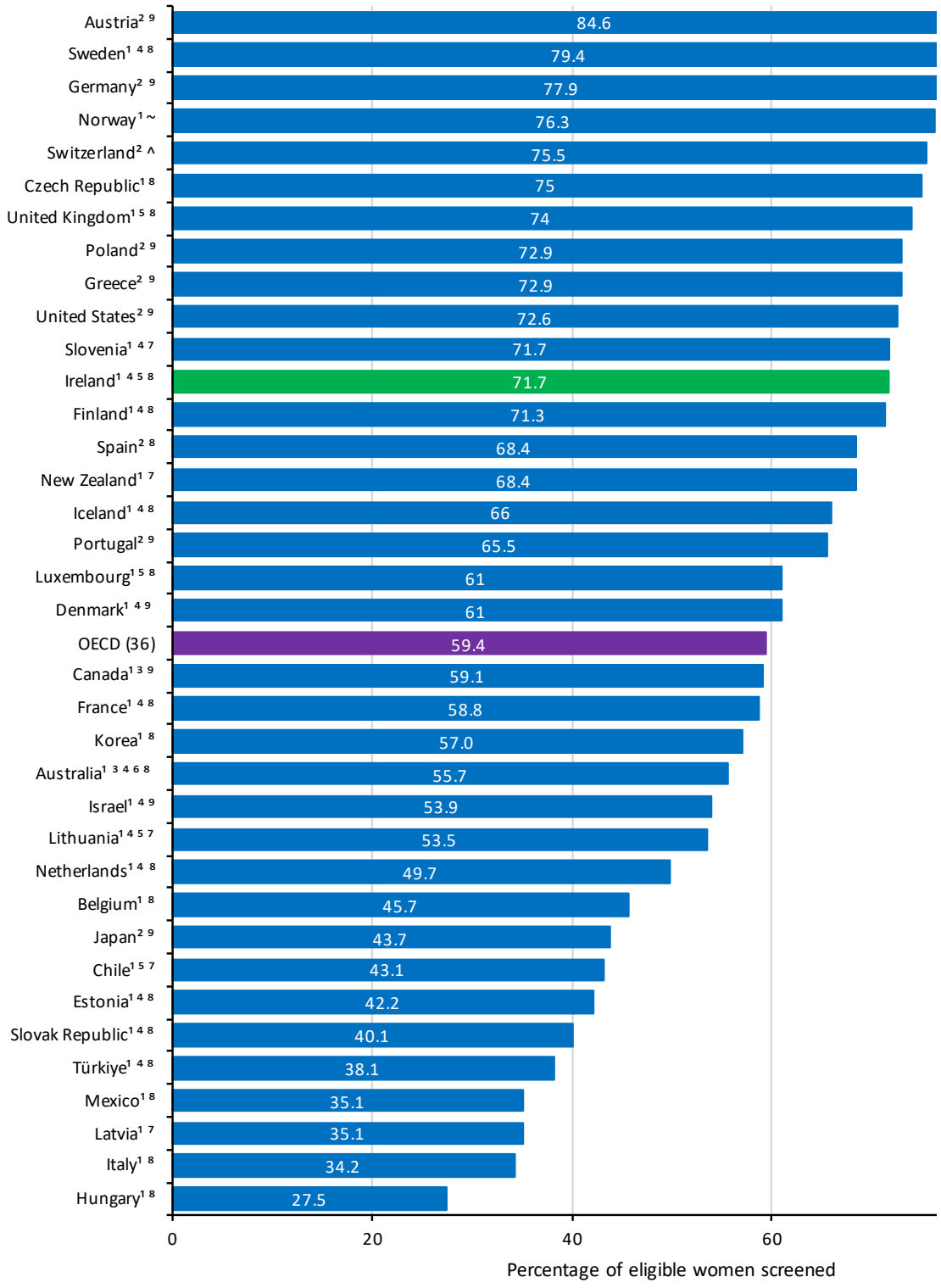
Figure 1.15: Percentage of eligible women screened for cervical cancer by county of residence for the period 1 September 2015 - 30 March 2020



Source: National Screening Service

Notes:
(i) Eligible population based on CSO Census 2016, projected to 2017, not adjusted for hysterectomy.
(ii) The National Average here is a weighted average of county rates.

Figure 1.16: Cervical screening in women aged 20-69 years in OECD countries, 2021 (or nearest year)



[1] Programme data; [2] Survey data; [3] Estimated value; [4] Different methodology; [5] Provisional value; [6] Break in series. [7] 2021; [8] 2020; [9] 2019; ~ 2018; ^ 2017

Source: OECD Health Statistics

Notes:
(i) Screening rates reflect the proportion of women who are eligible for a screening test and actually receive the test. Some countries ascertain screening based on surveys and others based on encounter data, which may influence the results. Survey-based results may be affected by recall bias. Programme data are often calculated for monitoring national screening programmes, and differences in target population and screening frequency may also lead to variations in screening coverage across countries.
(ii) Ireland's cervical cancer screening programme covers women aged 25-60. The age cohorts covered by screening programmes in other countries may vary.

Screening uptake rate for colorectal cancer

Definition

The proportion of the eligible population who have availed of a bowel screen within a two-year time period.

Description

Colorectal cancer, also known as bowel cancer, is a general term for cancer that begins in the large bowel. Bowel cancer is the second most common of all cancers in men and the third most common of all cancers in women. An estimated 2,800 new cases are diagnosed each year in Ireland.

Currently, in Ireland men and women aged 60 to 69 years can avail of BowelScreen, Ireland's national bowel screening programme. Eligible people receive an invitation letter to receive an at-home bowel screening test called a FIT (faecal immunochemical test). If the amount of blood found in the stool sample is above the screening limit, they will be referred for a further test called a colonoscopy. BowelScreen reports that over 95% of people will have a normal result following the at home test. A colonoscopy is the best way to diagnose bowel cancer and other conditions. A colonoscopy is carried out in a screening colonoscopy unit in a hospital organised by BowelScreen.

Routine screening every 2 years is recommended. BowelScreen aims to reach a target five-year coverage of 50%.

Rationale for the inclusion of indicator

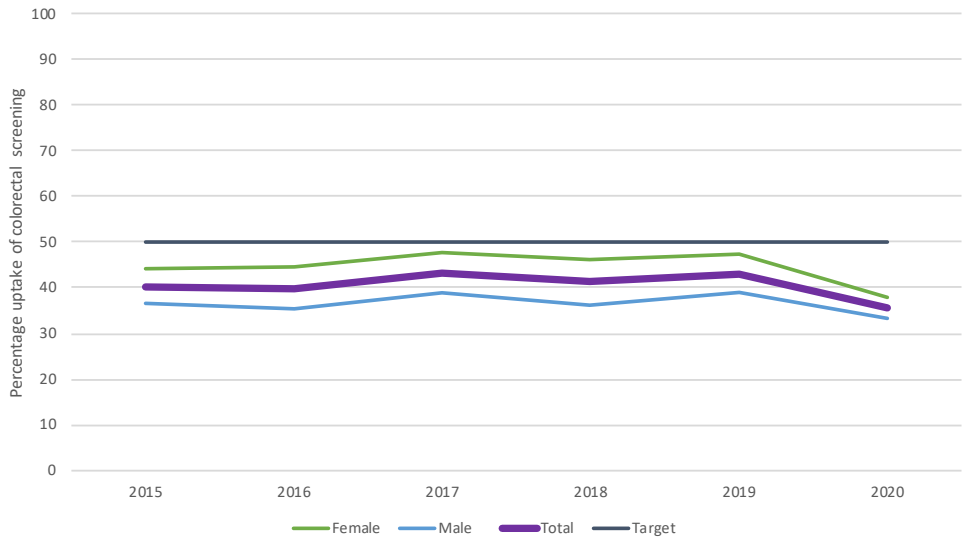
In Ireland, bowel (colon, rectal or colorectal) cancer is the second most common of all cancers in men and the third most common of all cancers in women. Each year an estimated 2,800 new cases of colorectal cancer are reported. The number of new cases is expected to increase significantly over the next 10 years, due mainly to an increasing and ageing population.

Colorectal cancer is currently the second most common cause of cancer death in Ireland.

Commentary

- The national uptake rate has been below the 50% target over the six-year period from 2015 to 2020. There was a decrease in uptake in 2020 (35.6%) in comparison to 2019 (43%). Uptake has been higher for women than men every year.
- In 2018-2019, the uptake rate nationally was 47% (below the 50% target). At county level the uptake rate ranged from 25.4% in Tipperary to 56.7% in Carlow and Leitrim. Eleven counties met the target rate of 50% uptake.
- At this time, the OECD does not collect data on colorectal cancer screening and hence no international comparator is available here.
- In March 2020, the BowelScreen Programme was paused due to the global COVID-19 pandemic. BowelScreen restarted issuing invites for screening to eligible people on a phased basis in August 2020. The impact of this delay will likely be seen in future cycles of the NHQRS report. A study is underway to examine the impact of the pandemic on the effect of delayed colonoscopies on clinical outcomes.

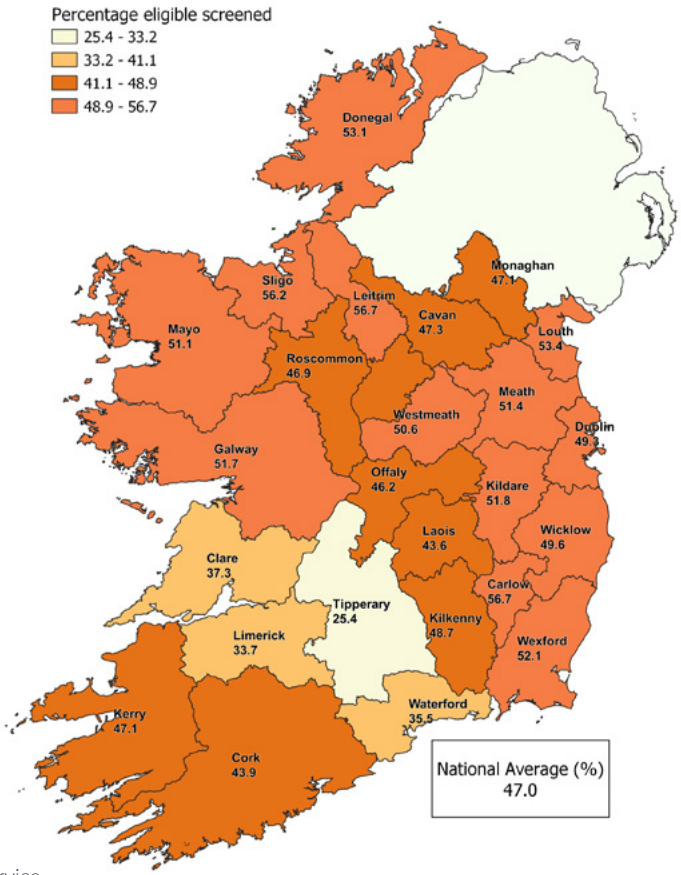
Figure 1.17 Uptake of colorectal screening by the eligible population by sex, 2015 – 2020



Source: National Screening Service

Notes:
(i) The numerator is eligible men and women aged 60-69 who had a satisfactory FIT test in the past two years. The denominator is men and women aged 60-69 who were invited in that year.
(ii) Data is provisional for 2020.

Figure 1.18: Percentage of eligible population screened for bowel cancer by county of residence for the period 1st January 2018 – 31st December 2019



Source: National Screening Service

Notes:
(i) Eligible population based on CSO Census 2016, projected to 2018.
(ii) Unpublished data.
(iii) The national average here is a weighted average of county rates.

References

[1] WHO, "Vaccines and immunization," [Online]. Available: https://www.who.int/health-topics/vaccines-and-immunization#tab=tab_1. [Accessed 23 August 2022].
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[9] Health Protection Surveillance Centre, "Influenza (Flu) - Frequently Asked Questions," Health Protection Surveillance Centre, Dublin, 2022.
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[13] I. Lansdorp-Vogelaar, A. B. Knudsen and H. Brenner, "Cost-effectiveness of Colorectal Cancer Screening – An," Best Practice & Research Clinical Gastroenterology, vol. 24, pp. 439-449, 2010.

Domain 1 indicators metadata

Indicator	Immunisation rate for MMR vaccine
Definition	Percentage of children 24 months of age who have received at least one dose of the MMR (measles, mumps and rubella) vaccine.
Years Covered	National trend: 2012 – 2021
Classification	Community Health Organisation and Local Health Office: 2020 and 2021
Methodology	**Numerator:** Number of children who have received the 1st dose of MMR vaccination by their second birthday. **Denominator:** Number of children who have reached their second birthday.
Notes	The data for 2018 are incomplete as data for some regions were incomplete. Please note that while North Lee and South Lee are two separate LHOs their combined immunisation uptake data are reported here.
Data Source(s)	Health Protection Surveillance Centre

Indicator	Immunisation rate for MenC vaccine
Definition	Percentage of children aged 24 months who have received one dose Meningococcal C vaccine between the ages of 12 and 24 months
Years Covered	National trend: 2012-2021
Classification	N/A
Methodology	**Numerator:** MenCb-one dose of vaccine against meningococcal serogroup C on or after 12 months of age **Denominator:** Number of children who have reached their second birthday.
Notes	The data for 2018 are incomplete as data for some regions were unavailable. Please note that while North Lee and South Lee are two separate LHOs their combined immunisation uptake data are reported here. The recommended primary schedule changed for all babies born on or after October 1st 2016 (Quarter 4 2018 24-month cohort) to one dose of MenC at 6 months and a second dose of MenC (as part of a combined Hib/MenC) at 13 months. Changes to the schedule over the years are available at https://www.hse.ie/eng/health/immunisation/whoweare/vacchistory.html. Not all local databases/reports were configured to count the combined Hib/MenC vaccine where it is the second dose of MenC and this has resulted in data coverage issues for MenC2. Due to the challenges with recording national coverage of 2 doses of MenC by age 24 months, in 2021 the indicator changed to report children who have received one dose of MenC between the age of 12 and 24 months of age. The national target for uptake is 95%, which is in line with international targets.
Data Source(s)	Health Protection Surveillance Centre

Indicator	Immunisation rate against influenza for persons aged 65 years and older
Definition	Percentage of people aged 65 years and over who have been vaccinated against influenza.
Years Covered	National trend: 2012/2013 – 2021/2022
Classification	OECD Comparison: 2021 (or nearest year)
Methodology	**Numerator:** ***Prior to season 2020/21:*** Number of medical card and GP Visit Card holders aged 65 years and over who have received the influenza vaccine from a GP or (from 2012/2013) from a pharmacist. ***Season 2020/21 onwards:*** Number of persons aged 65 years and over who have received the influenza vaccine from a GP or from a pharmacist. **Denominator:** ***Prior to season 2020/21:*** Number of medical card and GP Visit Card holders aged 65 years and over. ***Season 2020/21 onwards:*** CSO population estimate of total persons aged 65 years and older.
Notes	Prior to season 2020/21 influenza vaccination data related to paid claims for influenza vaccine reimbursement for medical card holders and GP Visit Card holders aged 65 years old and over attending GP clinics and pharmacies for influenza vaccination. Data from pharmacies were only available from the 2012/2013 influenza season when administration of influenza vaccine by pharmacists commenced. From season 2020/21 onwards influenza vaccination data relates to paid claims for influenza reimbursement for all persons aged 65 years old and over attending GP clinics and pharmacies for influenza vaccination. Data refers to the influenza season from September-August. HPSC's Report on the Uptake of the Influenza Vaccine for Health Care Workers (HCWs) and residents in Long-Term Care Residential Facilities (LTCFs) 2020-2021 Season includes data on uptake for residents in long-term care facilities.
Data Source(s)	Health Protection Surveillance Centre OECD Health Statistics

Indicator	Immunisation rate against influenza among healthcare workers in hospitals
Definition	Percentage of healthcare workers (HCWs) in hospitals, who have been vaccinated against seasonal influenza.
Years Covered	National Trend: Public hospitals 2012/2013 – 2021/2022 Staff categories comparison: Public hospitals 2021/2022 Hospitals: All reporting hospitals 2021/2022
Classification	N/A
Methodology	**Numerator:** Number of healthcare workers in HSE-funded (or all reporting) hospitals who have received seasonal influenza vaccine by the end of the influenza season. **Denominator:** Number of long term or permanent healthcare workers that staff HSE-funded (or all reporting) hospitals.
Notes	Data from other hospitals (private) is provided annually on a voluntary basis to HPSC. HPSC's Report on the Uptake of the Influenza Vaccine for Health Care Workers (HCWs) and residents in Long-Term Care Residential Facilities (LTCFs) 2020-2021 Season includes data on uptake for healthcare workers in hospitals and long-term care facilities.
Data Source(s)	Health Protection Surveillance Centre

Indicator	Immunisation rate for human papillomavirus (HPV) vaccine
Definition	Percentage of children in first year of second level schools and their age equivalents* who have received the at least stage 2 (2 doses) of HPV vaccine.
Years Covered	National Trend: Academic years (September to August) 2014/2015-2020/2021 Community Health Organisation and Local Health Office Comparison: Academic year 2018/2019-2020/2021 In the 2019/2020 academic year the HPV vaccination programme was extended to boys. Data for 2019/2020 and 2020/21 is provided separately for girls and boys.
Classification	N/A
Methodology	**Numerator:** Number of first year children (girls only prior to 2019/2020) and age equivalents who have received at least stage 2 (2 doses) of the HPV vaccine, including children in this cohort but vaccinated outside the academic year. **Denominator:** Number of children (girls only prior to 2019/2020) in their first academic year at second level on the school role on 30th September and recorded on the School Immunisation System (SIS) and, for their age equivalents, the number of children on the school role of special schools or registered with Child and Family Agency Education Welfare Services (and previously the National Educational Welfare Board) as home schooled. **Denominator for 2019/20 and 2020/21 data by gender:** As the denominator on the SIS is not currently available by gender for children in special schools and home schooled, uptake rates for males/females in 2019/20 and 2020/21 do not include homeschooled children or children in special schools.
Notes	Although the HPV vaccination programme was initiated in May 2010, data for academic years prior to 2014/2015 is not directly comparable because in previous years a three-dose schedule was recommended. * Age equivalents include those attending special schools or registered with the Child and Family Agency Education Welfare Services (and previously the National Educational Welfare Board) as home schooled.
Data Source(s)	Health Protection Surveillance Centre

Indicator	Screening rate for breast cancer
Definition	Percentage uptake of breast screening by eligible women in the population
Years Covered	National level: Cohort 2011-2020 County level: Cohort 2018/2019 OECD Comparison: 2021 (or nearest year)
Classification	N/A
Methodology	**Numerator:** The number of eligible women in the population who were invited in the reporting period and have had a satisfactory screening test. **Denominator:** The number of eligible women invited in the reporting period.
Notes	The data for 2020 is provisional. The eligible population refers to the known target population (women of screening age that are known to the programme) less those women excluded or suspended by the programme based on certain eligibility criteria.
Excluded	Women in follow up care for breast cancer, not contactable by An Post, women who have a physical/mental incapacity (while BreastCheck attempts to screen all eligible women, certain forms of physical or mental incapacity may preclude screening), terminal illness or other.
Suspended	Women on extended vacation or working abroad, women who had a mammogram within the last year, women who opt to wait until the next round, women who wished to defer appointment, women unwilling to reschedule or other.
Data Source(s)	National Screening Service OECD Health Statistics

Indicator	Screening rate for cervical cancer
Definition	The proportion of the eligible population in Ireland who had a satisfactory screening test within a 5-year time period.
Years Covered	National level: 5-year period covering 01/09/2015-31/03/2020 County level: 5-year period covering 01/09/2015-31/03/2020 OECD Comparison: 2021 (or nearest year)
Classification	N/A
Methodology	**Numerator:** The number of women in the eligible population who have had a satisfactory screening test in the 5-year reporting period. **Denominator:** The number of eligible women in the population at the mid-point of the 5-year reporting period. Population is based on CSO Census 2016 projected to 2017. For national data by age group (Figure 1.14) this is adjusted for hysterectomy. For county level data (Figure 1.15) this is not adjusted for hysterectomy.
Notes	In March 2020 CervicalCheck introduced the HPV test as the primary screening method, replacing primary cytology screening. The latest five-year period therefore covers 1 September 2015 to 31 March 2020 (instead of September - August as reported for previous five-year periods). This is a rolling parameter which is updated each year to incorporate the previous five-year period.
Data Source(s)	National Screening Service OECD Health Statistics

Indicator	Screening rate for colorectal cancer
Definition	The proportion of the eligible population in Ireland who have availed of a bowel screen a 2-year time period.
Years Covered	National level: 2015-2020 County level: 01/01/2018-31/12/2019
Classification	N/A
Methodology	**Numerator:** The number of eligible people in the population who were invited in the reporting period and have availed of bowel screening. **Denominator:** The number of eligible people invited in the reporting period. Eligible population based on CSO Census 2016, projected to 2018.
Notes	The data for 2020 is provisional. County level data is unpublished. The eligible population refers to the known target population less those excluded or suspended by the programme based on certain eligibility criteria.
Data Source(s)	National Screening Service

2

Domain 2: Supporting people with long term conditions

Ambulatory care sensitive conditions

Overview of selected indicators

There are 4 indicators[1] covered in this domain in the following area:
Ambulatory care sensitive conditions

Ambulatory care sensitive conditions

Ambulatory care sensitive conditions are those where good quality primary care can help prevent the need for hospital admission or for which early intervention can prevent complications or more severe disease. Avoiding hospital admissions is of benefit to individual patients and to the health service as a whole.

Data which shows the number of hospitalisations for different chronic conditions can give an insight into the performance and quality of services for these conditions in primary care. However, it is important to remember that the indicators included in this section are alerts which can highlight the need for further analysis rather than definitive measures of the quality of primary care services for specific medical conditions. As well as the quality of primary care, the number of hospital admissions for these conditions also depends on the prevalence of the medical condition in the geographical area, environmental conditions, and primary care access to diagnostic tests.

There are a number of potential explanations for the variation seen, both between Ireland and other countries, and between counties in Ireland, and it should not be concluded that higher or lower rates are a reflection on the quality of care provided in primary and community care settings. The reasons potentially include, but are not limited to, issues related to the quality of the data, differences in the prevalence of risk factors and chronic conditions in the population, the availability of services at primary and community care level, access to specific treatments, and the availability of hospital beds.

Asthma, chronic obstructive pulmonary disease (COPD), diabetes and heart failure are four relatively common conditions in Ireland. The models of care for diabetes, COPD, asthma, and heart failure are well established and suggest that most of this care can be delivered at primary care level in the community if properly resourced. Reflecting this need to shift the majority of chronic disease care into the community, the Integrated Model of Care for the Prevention and Management of Chronic Disease continues to be rolled out nationally as part of the Enhanced Community Care Programme. 'Integrated Care' for chronic disease is defined as healthcare provided at the lowest appropriate level of complexity, with responsive services built around patient need to support and empower individuals to optimise their health, actively address and minimise their risk factors for chronic disease and to live well with chronic disease. At the heart of this model of care is a well-resourced primary care service that is supported to diagnose chronic conditions early and to empower patients to proactively manage chronic conditions and their associated complications. Reflecting the Sláintecare vision, the focus is on keeping people well and on providing care as close to home as possible.

The General Practitioner (GP) Chronic Disease Management (CMD) Programme, which is part of the Integrated Model of Care, commenced in 2020 is being rolled out on a phased basis to adult GMS (Medical Card) and GP Visit Card patients over a 4-year period. The first phase of the CDM Treatment Programme commenced at the end of January 2020. Patients with an existing diagnosis of one of the specified chronic conditions as well as those who are assessed by their GP on an opportunistic case finding basis, as well as those identified as high risk, will benefit under the programme. It is estimated that over 430,000 medical card and GP visit card patients will benefit from the programme when it is fully implemented. The specified chronic conditions included in the Programme are Type 2 Diabetes; Asthma; Chronic Obstructive Pulmonary Disease (COPD) and Cardiovascular Disease (including Heart Failure, Ischaemic Heart Disease, Cerebrovascular Disease (Stroke/Transient Ischemic Attack (TIA), Atrial Fibrillation). In order to support patients in managing their chronic condition(s) there are two scheduled reviews with the GP in a 12-month period, each preceded by a practice nurse visit. As of 11 September 2021, there were 166,147 patients registered on the CDM system, with 2,218 GPs reporting cases across 1,080 practices. Approximately 75% of currently eligible (65 years and older) patients are enrolled, increasing to almost 82% of those aged 75 years or older. [1]

1 See Metadata Sheets at the end of this Domain for detailed definitions and methodology for the calculation of the indicators.

Ambulatory care sensitive conditions contd.

The Living Well Programme, a Self-Management Resource Centre (SMRC) Evidence Based Self-Management Programme, received Sláintecare Integrated Funding to enable delivery during 2020/2021. The programme is a series of online workshops designed to offer support to people living with Long Term Health Conditions (LTHCs). The programme was previously delivered in a face-to-face community setting, but it has been made available online during the Covid-19 pandemic.

The 4 indicators for ambulatory care sensitive conditions are:

- Chronic Obstructive Pulmonary Disease (COPD) hospitalisation rates
- Asthma hospitalisation rates
- Diabetes hospitalisation rates
- Heart failure hospitalisation rates.

While the need to go to hospital for these conditions will never be eliminated, differences between Ireland and other countries, and between counties in Ireland, indicate that there may be potential to improve the consistency of the care provided to these patients, specifically in primary care.

Note on 2020 and 2021 data

The unprecedented impact of the COVID-19 pandemic on the health service and the rapid national response which was mounted had a huge impact on normal service delivery across the health and social care system. From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. As a result of these direct impacts of COVID-19 on the health and social care service, hospital activity in both 20201 and 2021 was extensively affected. Behavioural change among the public as a result of fear and healthcare avoidance, particularly during the early months of the pandemic, may also have impacted on attendance during this time. For patients with other illnesses and injuries who continued to present to hospitals, there were significant challenges to well-established pathways of care. These factors should be taken into consideration when reviewing 2020 and 2021 data in this domain and throughout the report.

Chronic obstructive pulmonary disease (COPD) hospitalisation rates

Definition
The age-sex standardised hospitalisation rate per 100,000 population for people aged 15 years and older with a principal diagnosis of COPD.

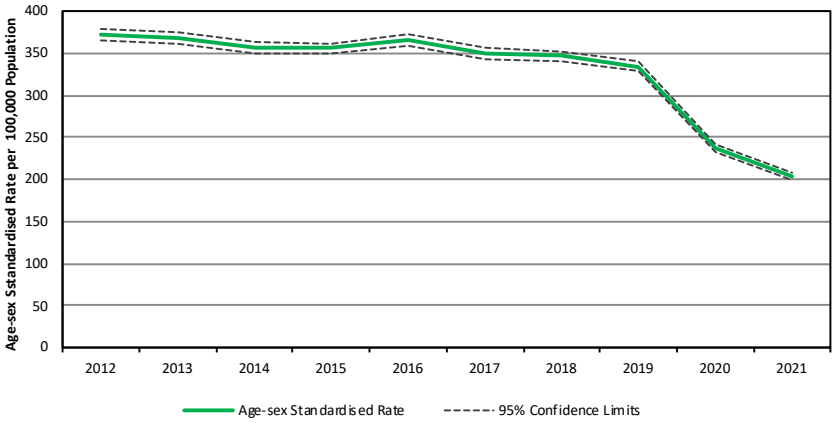
Description
COPD is a common progressive lung disease. Although it is a preventable disease, exposure to inhaled gases and particles, e.g., tobacco smoke, which accounts for 85-90% of cases, usually begins decades before symptomatic disease can be detected [2], [3].

Although symptoms of COPD can usually be managed by the patient with their GP and the primary care team, patients with very severe symptoms or complications may need to be admitted to hospital. It is important to note that not all hospitalisations due to COPD are avoidable and may be clinically appropriate.

Rationale for the inclusion of indicator
It is estimated that 380,000 people are living with COPD yet only 110,000 are diagnosed. It is particularly prevalent in the more vulnerable in society including people from areas with high social deprivation. At least 1500 patients die each year of COPD and over 15,000 patients are admitted to hospital with COPD. It has a profound effect on patients but also has a significant strain on the health service [4].

Commentary
- The national age-sex standardised hospitalisation rate for COPD fell 45.3% between 2012 and 2021, with 203.44 hospitalisations per 100,000 population in 2021 compared with 371.79 hospitalisations per 100,000 population in 2012.
- There was a 28.9% decline in the age-sex standardised hospitalisation rate between 2019 and 2020, with COVID-19 likely to have had a strong impact with the reconfiguration and re-designation of hospital wards to accommodate COVID-19 patients, behavioural change among the public as a result of fear and healthcare avoidance, people cocooning and less respiratory infections circulating. The rate decreased further in 2021 from 237.8 to 203.44.
- The latest data from the OECD reports that Ireland had the 6th highest age-sex standardised hospitalisation rate for COPD. In previous years Ireland has reported the highest rate, however it should be noted that data for Ireland refers to 2020, while data for the countries recording higher rates are from earlier (pre-Covid) years. While Ireland's average rate reported to the OECD decreased from 350.6 hospitalisations per 100,000 population in 2017 to 238.0 in 2020, the OECD average also declined (180.4 to 151.3).
- In Ireland during the three-year period from 2019-2021, the age-sex standardised hospitalisation rate by county of residence ranged from 184.3 hospitalisations per 100,000 population in Kerry to 367.9 hospitalisations per 100,000 population in Donegal. The national rate per 100,000 was 257.0. The precise reasons for the variation seen between areas require further investigation.
- There are a number of potential explanations for the variation seen, both between Ireland and other countries, and between counties in Ireland. The reasons potentially include, but are not limited to, issues related to the quality of the data, differences in the prevalence of risk factors (i.e., tobacco exposure or air pollution) or chronic conditions in the population, the availability of services at primary and community care level, access to specific treatments, and the availability of hospital beds.

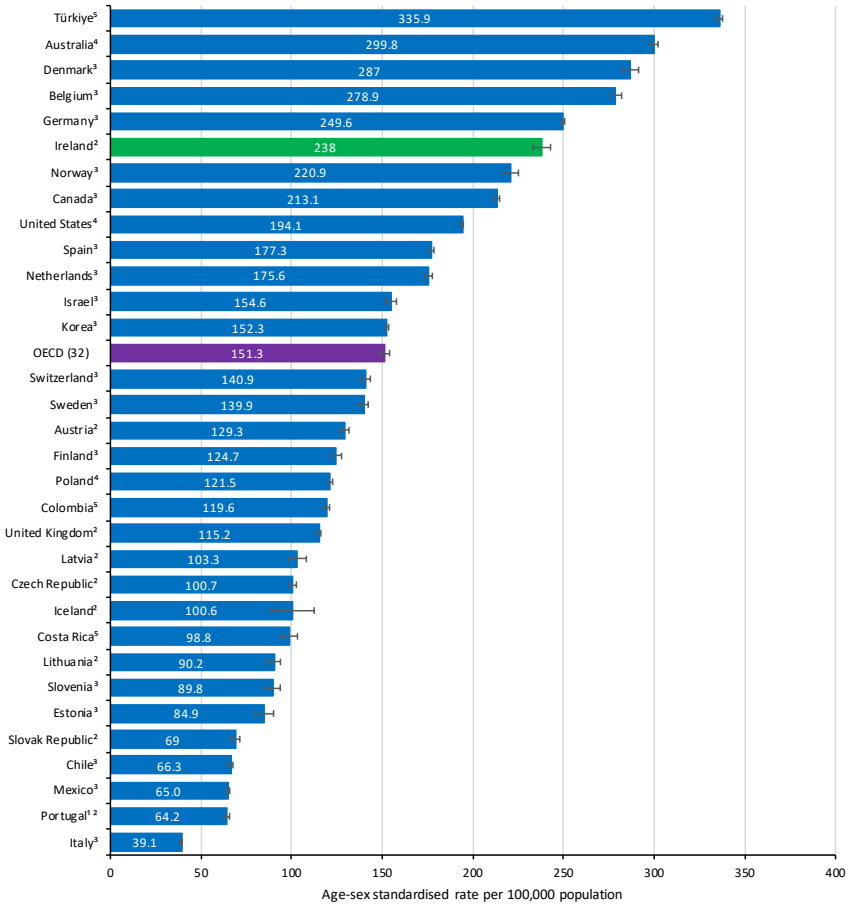
Figure 2.1: Age-sex standardised hospitalisation rates for COPD per 100,000 population in Ireland, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Data for previous years differs from data presented in previous NHQRS reports. This is due to methodological updates which have been backdated to previous years' data.
(ii) From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

Figure 2.2: Age-sex standardised hospitalisation rates for COPD per 100,000 population (15 years or older) for selected OECD countries, 2020 (or nearest year)

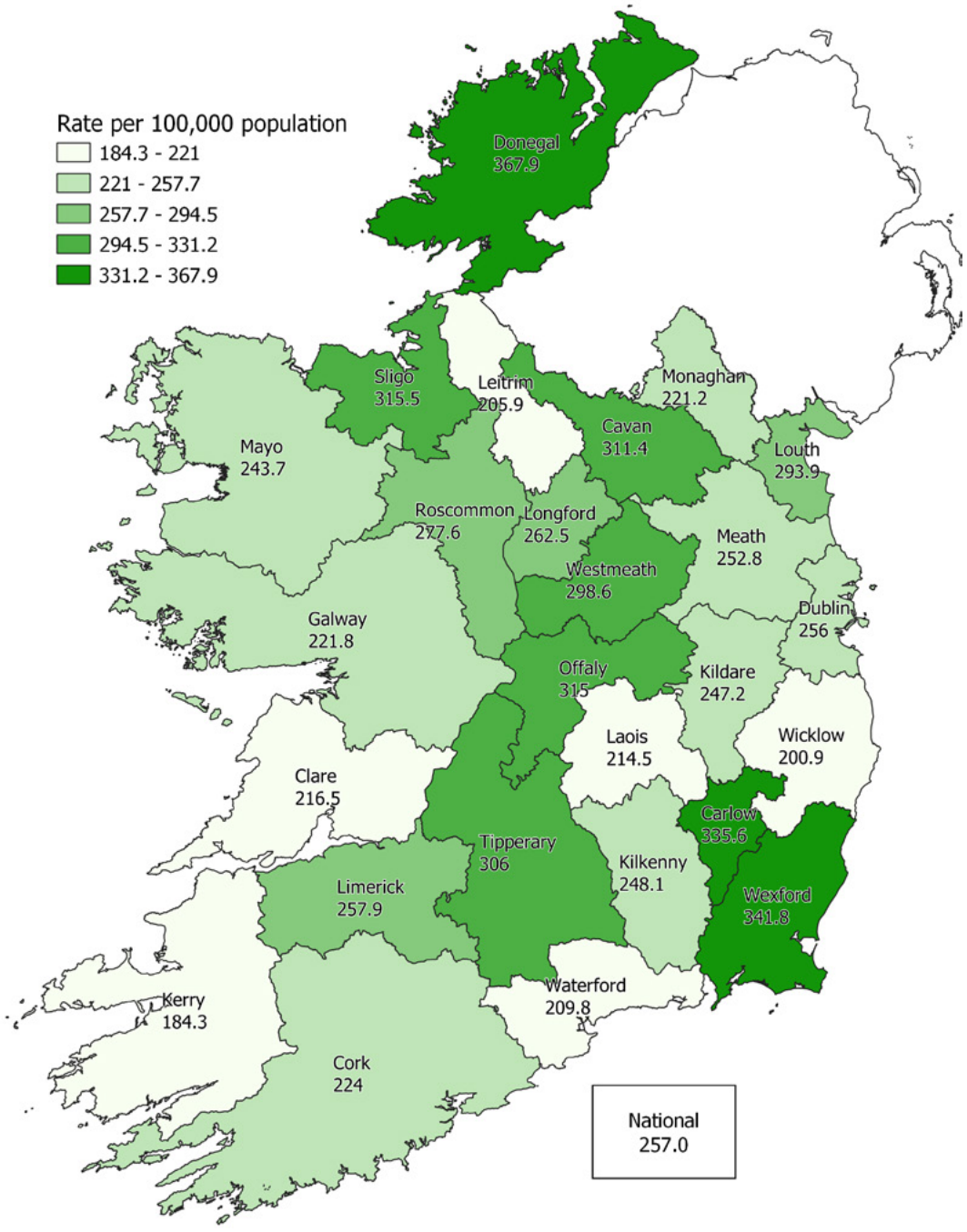


[1] Estimated value; [2] 2020; [3] 2019; [4] 2018; [5] 2017

Source: OECD Health Statistics.

Notes:
(i) Differences in coding practices among countries and the definition of an admission may affect the comparability of data. Differences in disease classification systems, for example between ICD-9-CM and ICD-10-AM/ACHI, may also affect data comparability. 95% confidence intervals represented by ⊢.
(ii) Nine countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.
(iii) OECD (32) average based on latest available year's data for countries which have reported for 2016 or later.

Figure 2.3: Age-sex standardised hospitalisation rate for COPD per 100,000 population by county of residence, 2019-2021



Source: Hospital In-Patient Enquiry (HIPE)

Table 2.1: Age-sex standardised hospitalisation rate for COPD per 100,000 population by county of residence, 2019-2021

County of Residence	Number of Cases	Age-sex Standardised Admission Rate	Lower 95% Confidence Limit for Admission Rate	Upper 95% Confidence Limit for Admission Rate
Carlow	463	335.6	304.9	366.3
Cavan	597	311.4	286.2	336.5
Clare	576	216.5	198.7	234.3
Cork	3,087	224.0	216.1	231.9
Donegal	1,653	367.9	350.0	385.7
Dublin	7,864	256.0	250.3	261.6
Galway	1,415	221.8	210.2	233.5
Kerry	811	184.3	171.6	197.1
Kildare	1,095	247.2	232.2	262.2
Kilkenny	651	248.1	229.0	267.2
Laois	501	214.5	195.5	233.5
Leitrim	209	205.9	177.8	234.1
Limerick	1,112	257.9	242.6	273.1
Longford	358	262.5	235.2	289.8
Louth	926	293.9	274.9	312.8
Mayo	1,002	243.7	228.5	258.9
Meath	1,046	252.8	237.3	268.3
Monaghan	345	221.2	197.8	244.6
Offaly	799	315.0	293.1	336.9
Roscommon	569	277.6	254.6	300.6
Sligo	597	315.5	290.1	340.9
Tipperary	1,185	306.0	288.5	323.4
Waterford	660	209.8	193.7	225.9
Westmeath	809	298.6	277.9	319.2
Wexford	1,388	341.8	323.8	359.9
Wicklow	736	200.9	186.2	215.5
Ireland	30,454	257.0	254.1	259.8

Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Data refer to the average annual age-sex standardised hospitalisation rate per 100,000 population from 2019-2021.
(ii) Data for previous years differs from data presented in previous NHQRS reports. This is due to methodological updates which have been backdated to previous years' data.

Asthma hospitalisation rates

Definition
The age-sex standardised hospitalisation rate per 100,000 population for people aged 15 years and older with a principal diagnosis of asthma.

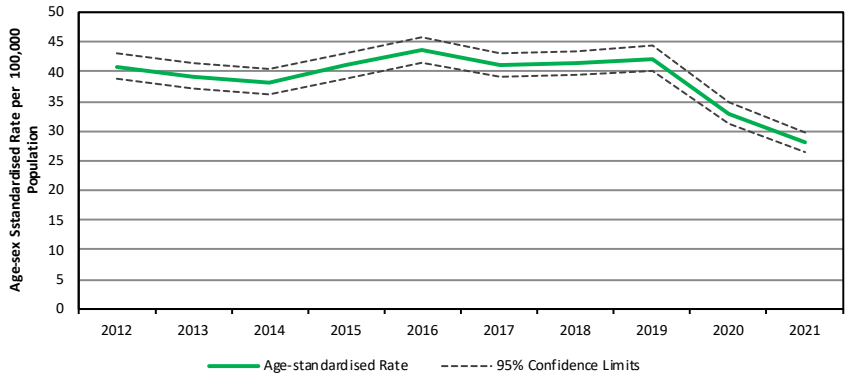
Description
Asthma is a chronic inflammatory condition of the airways characterised by recurrent episodes of wheezing, breathlessness, chest tightness and coughing. Ireland has one of the highest rates of asthma prevalence in the world.

For most people with asthma, it should be possible to maintain their health and quality of life so that they have few or no symptoms (asthma control). Hospitalisation with an acute exacerbation (attack) of asthma is a sign of uncontrolled asthma and may, in many cases, be preventable. However, it is important to note that not all hospitalisations are avoidable, and some may be clinically appropriate. In addition, it should be noted that a number of people with asthma are admitted on a planned basis, either to facilitate the administration of particular medication or for diagnostic investigations such as a bronchoscopy (an examination of the airways under sedation) or CT scan. The vast majority of these will be admitted and discharged on the same day and hence are not included in the following analysis. However, a small number of patients will have been admitted overnight for these investigations/procedures and hence will have been incorrectly included as an acute hospitalisation in the data presented below.

Rationale for the inclusion of indicator
Current estimates suggest that there are approximately 450,000 people with doctor-diagnosed asthma in Ireland (approx. 1 in 10 of population), of whom approximately 240,000 are estimated to have uncontrolled asthma [5]. Evidence suggests that the prevalence of asthma within the Irish population is rising; for example, one study reported that there was a 42% relative increase in the prevalence of asthma in Irish teenagers between 1998 and 2003 [6].

Commentary
- The age-sex standardised hospitalisation rate for asthma fluctuated over the period from 2012-2019, from a low of 38.2 per 100,000 population in 2014 to a high of 43.6 hospitalisations per 100,000 population in 2016. There was a 21.8% decline between 2019 and 2020 to a rate of 33 hospitalisations per 100,000, with COVID-19 likely to have had a strong impact with the reconfiguration and re-designation of hospital wards to accommodate COVID-19 patients, behavioural change among the public as a result of fear and healthcare avoidance, people cocooning and less respiratory infections circulating. There was a further decline in 2021 to 28.1 hospitalisations per 100,000.
- In the latest data reported by the OECD, in 2020, Ireland had a rate of 32.8 hospitalisations per 100,000 population, which was almost the same as the OECD average of 32.6 hospitalisations per 100,000 population. However, it should be noted that Ireland was one of nine countries who provided data for 2020, while data for all other countries refer to earlier (pre-Covid) years.
- During the three-year period from 2019-2021, the age-sex standardised hospitalisation rate by county of residence ranged from 22.3 hospitalisations per 100,000 population in Kerry to 67.7 hospitalisations per 100,000 population in Donegal, more than a three-fold variation. Although this variation appears substantial, it should be noted that the low absolute number of hospitalisations in many counties makes the rate sensitive to small changes in these numbers year-on-year. The national rate was 34.3 per 100,000 population. This caveat notwithstanding, the precise reasons for the variation seen between areas require further investigation.
- There are a number of potential explanations for the variation seen, both between Ireland and other countries, and between counties in Ireland, and it should not be concluded that higher or lower rates are a reflection on the quality of care provided in primary and community care settings. The reasons potentially include, but are not limited to, issues related to the quality of the data, differences in the prevalence of risk factors and chronic conditions in the population, the availability of services at primary and community care level, access to specific treatments, and the availability of hospital beds.

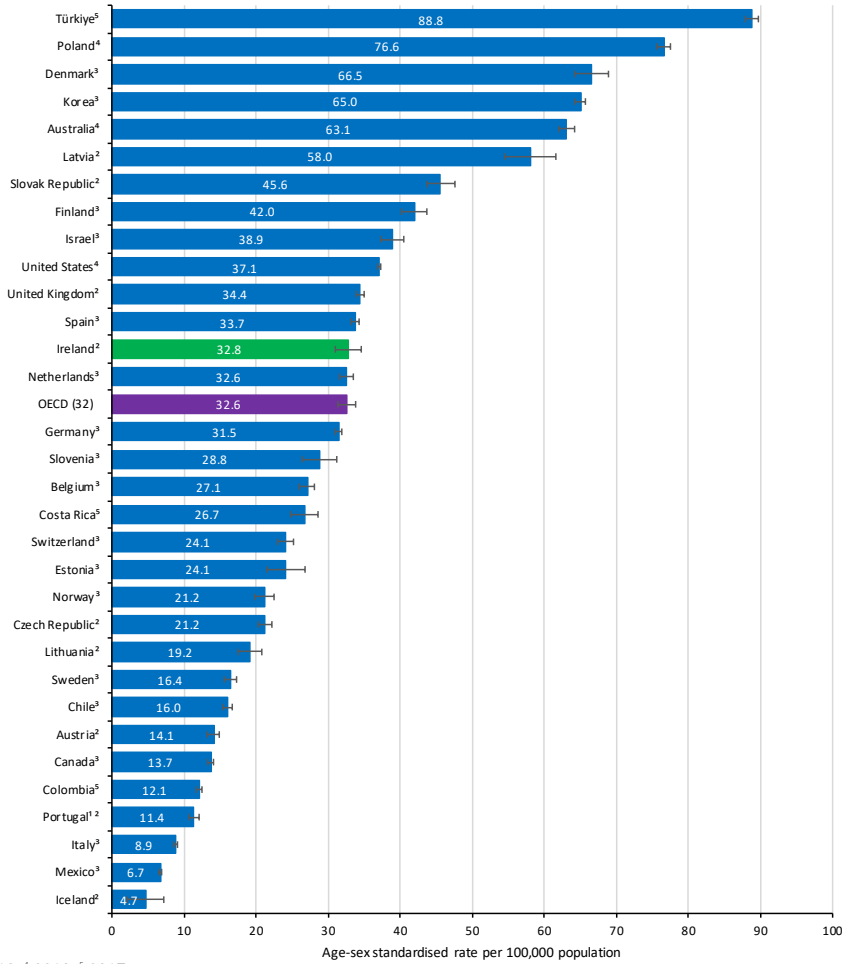
Figure 2.4: Age-sex standardised hospitalisation rates for asthma per 100,000 population in Ireland, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Data for previous years differs from data presented in previous NHQRS reports. This is due to methodological updates which have been backdated to previous years' data.
(ii) From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

Figure 2.5: Age-sex standardised hospitalisation rates for asthma per 100,000 population (15 years or older) for selected OECD countries, 2020 (or nearest year)

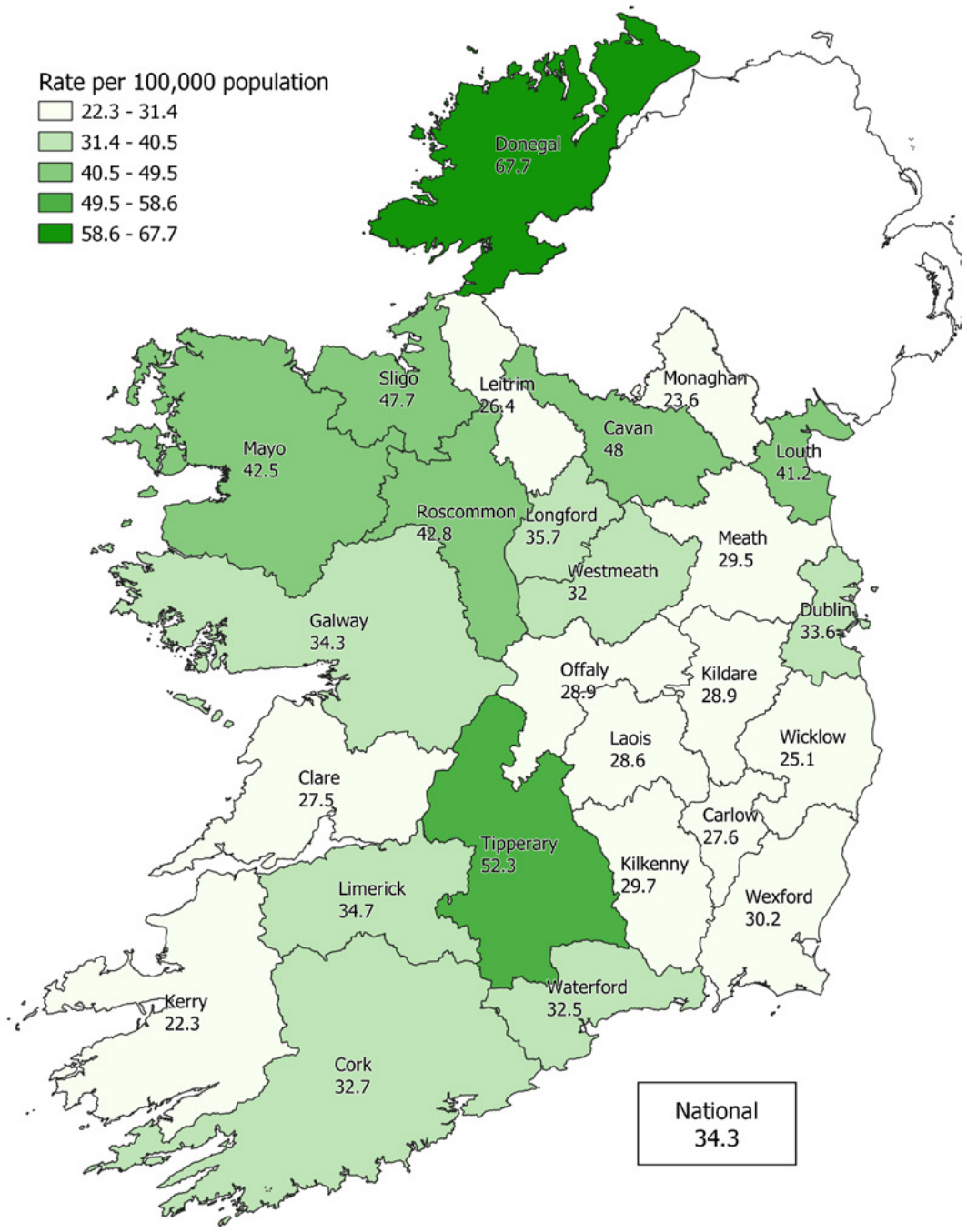


[1] Estimated value; [2] 2020; [3] 2019; [4] 2018; [5] 2017

Source: OECD Health Statistics.

Notes:
(i) Differences in coding practices among countries and the definition of an admission may affect the comparability of data. Differences in disease classification systems, for example between ICD-9-CM and ICD-10-AM/ACHI, may also affect data comparability. 95% confidence intervals represented by I-.
(ii) Nine countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.
(iii) OECD (32) average based on latest available year's data for countries which have reported for 2016 or later.

Figure 2.6: Age-sex standardised hospitalisation rates for asthma per 100,000 population by county of residence, 2019-2021



Source: Hospital In-Patient Enquiry (HIPE)

Table 2.2: Age-sex standardised hospitalisation rates for asthma per 100,000 population by county of residence, 2019 – 2021

County of Residence	Number of Cases	Age-sex Standardised Admission Rate	Lower 95% Confidence Limit for Admission Rate	Upper 95% Confidence Limit for Admission Rate
Carlow	39	27.6	18.9	36.3
Cavan	89	48.0	38.0	58.0
Clare	70	27.5	21.0	34.0
Cork	440	32.7	29.6	35.7
Donegal	267	67.7	59.5	75.9
Dublin	1,134	33.6	31.6	35.6
Galway	219	34.3	29.8	38.9
Kerry	86	22.3	17.5	27.1
Kildare	152	28.9	24.2	33.6
Kilkenny	71	29.7	22.8	36.7
Laois	68	28.6	21.7	35.5
Leitrim	21	26.4	14.8	38.0
Limerick	147	34.7	29.1	40.3
Longford	45	35.7	25.3	46.2
Louth	130	41.2	34.1	48.4
Mayo	140	42.5	35.4	49.7
Meath	141	29.5	24.5	34.4
Monaghan	37	23.6	16.0	31.2
Offaly	67	28.9	21.9	36.0
Roscommon	70	42.8	32.5	53.0
Sligo	75	47.7	36.7	58.7
Tipperary	177	52.3	44.5	60.1
Waterford	94	32.5	25.9	39.2
Westmeath	85	32.0	25.2	38.9
Wexford	116	30.2	24.6	35.7
Wicklow	88	25.1	19.8	30.4
Ireland	4,068	34.3	33.2	35.4

Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Data refer to the average annual age-sex standardised hospitalisation rate per 100,000 population from 2019-2021.
(ii) Data for previous years differs from data presented in previous NHQRS reports. This is due to methodological updates which have been backdated to previous years' data.

Diabetes hospitalisation rates

Definition
The age-sex standardised hospitalisation rate per 100,000 population for people aged 15 years and older with a principal diagnosis of diabetes.

Description
Diabetes is a condition where the body cannot regulate levels of glucose (sugar) in the blood. Type 1 diabetes generally develops in childhood or adolescence, while Type 2 diabetes more often develops in adults. About 90% of people with diabetes have Type 2 diabetes.

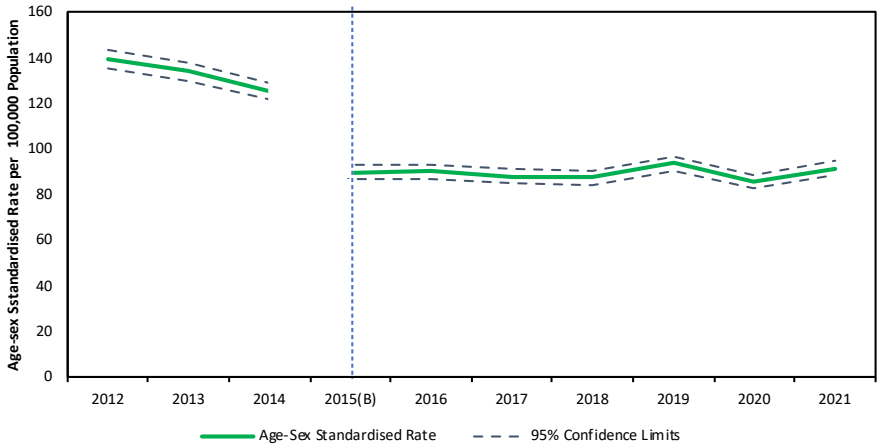
If not adequately controlled, diabetes can lead to a range of complications over the longer-term including kidney or heart disease and stroke, foot problems and the need for amputation, and problems with vision. Poorly controlled diabetes has also been associated with cognitive dysfunction (poorer brain health). Patients with diabetes may be hospitalised for diabetic complications such as unstable diabetes, hypoglycaemia (low blood sugar), hyperglycaemia (high blood sugar) or diabetic coma, or as a result of the aforementioned complications associated with poor control of the condition over the longer term. It is important to note that not all hospitalisations are avoidable, and they may be clinically appropriate.

Rationale for the inclusion of indicator
It has been estimated that approximately 5% of adults (aged 18 and over) in Ireland have doctor-diagnosed diabetes [7]. Importantly, a substantial proportion (20-30%) of people with Type 2 diabetes remain undiagnosed. It is expected that the number of people with Type 2 diabetes will increase by 60% over the next 10-15 years.

Notes on Measurement Changes
In 2015, an update to the coding system from ICD-10-AM from 6th to 8th edition resulted in a change in how diabetes is reported in HIPE. Hence the rates for years after 2015 are not directly comparable with those before 2015.

Commentary
- In 2021, the national age-sex standardised hospitalisation rate for diabetes was 91.4 hospitalisations per 100,000 population. This rate is a decline from 2019 which had the highest rate since 2015 (93.7 per 100,000 population). There was an 8.7% decline in the hospitalisation rate between 2019 and 2020 with COVID-19 likely to have had a strong impact with the reconfiguration and re-designation of hospital wards to accommodate COVID-19 patients, behavioural change among the public as a result of fear and healthcare avoidance and people cocooning.
- In the latest data reported by the OECD, the age-sex standardised hospitalisation rate for Ireland was 85.6 hospitalisations per 100,000 population. This was statistically significantly below the OECD average of 117.2 per 100,000 population. However, it should be noted that Ireland was one of nine countries who provided data for 2020, while data for all other countries refer to earlier (pre-Covid) years.
- In the three-year period from 2019-2021, the diabetes hospitalisation rate varied substantially by county of residence. It ranged from 56.5 hospitalisations per 100,000 population in Leitrim, to 127.6 hospitalisations per 100,000 population in Waterford. The national rate was 90.1 per 100,000 population. The reasons for the variation seen between areas require further investigation.
- There are a number of potential explanations for the variation seen, both between Ireland and other countries, and between counties in Ireland, and it should not be concluded that higher or lower rates are a reflection on the quality of care provided in primary and community care settings. The reasons potentially include, but are not limited to, issues related to the quality of the data, differences in the prevalence of risk factors and chronic conditions in the population, the availability of services at primary and community care level, access to specific treatments, and the availability of hospital beds.

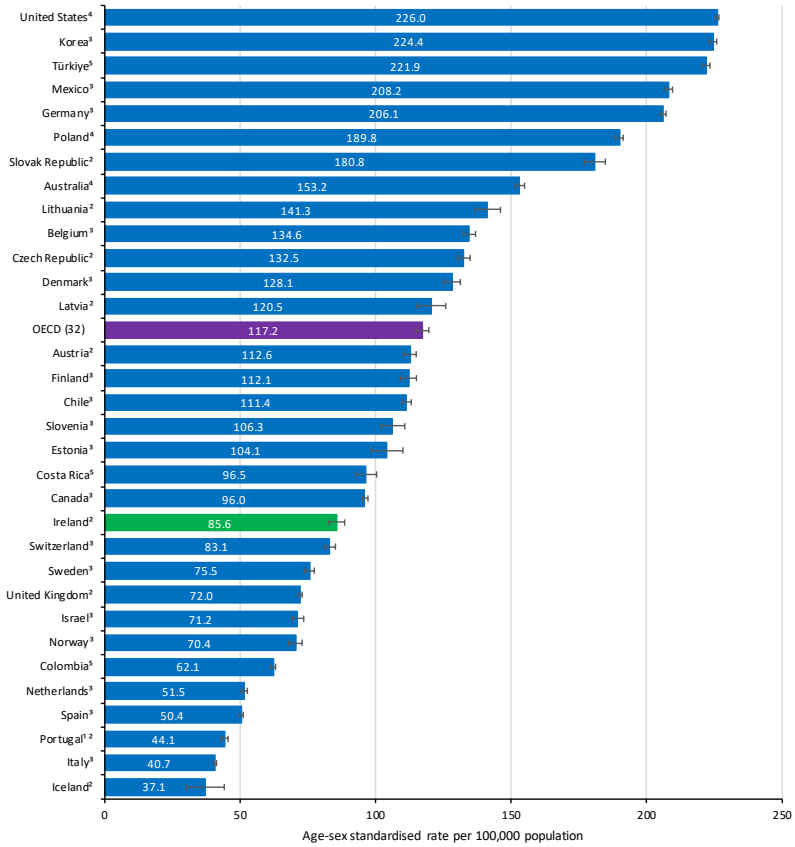
Figure 2.7: Age-sex standardised hospitalisation rates for diabetes per 100,000 population in Ireland, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) B = Break in series due to an update to the coding system from ICD-10-AM from 6th to 8th edition resulted in a change in how diabetes is reported in HIPE. Hence the rates for years subsequent to 2015 are not directly comparable with those from previous years' classification.
(ii) Data for previous years differs from data presented in previous NHQRS reports. This is due to methodological updates which have been backdated to previous years' data.
(iii) From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

Figure 2.8: Age-sex standardised hospitalisation rates for diabetes per 100,000 population (15 years or older) for selected OECD countries, 2020 (or nearest year)

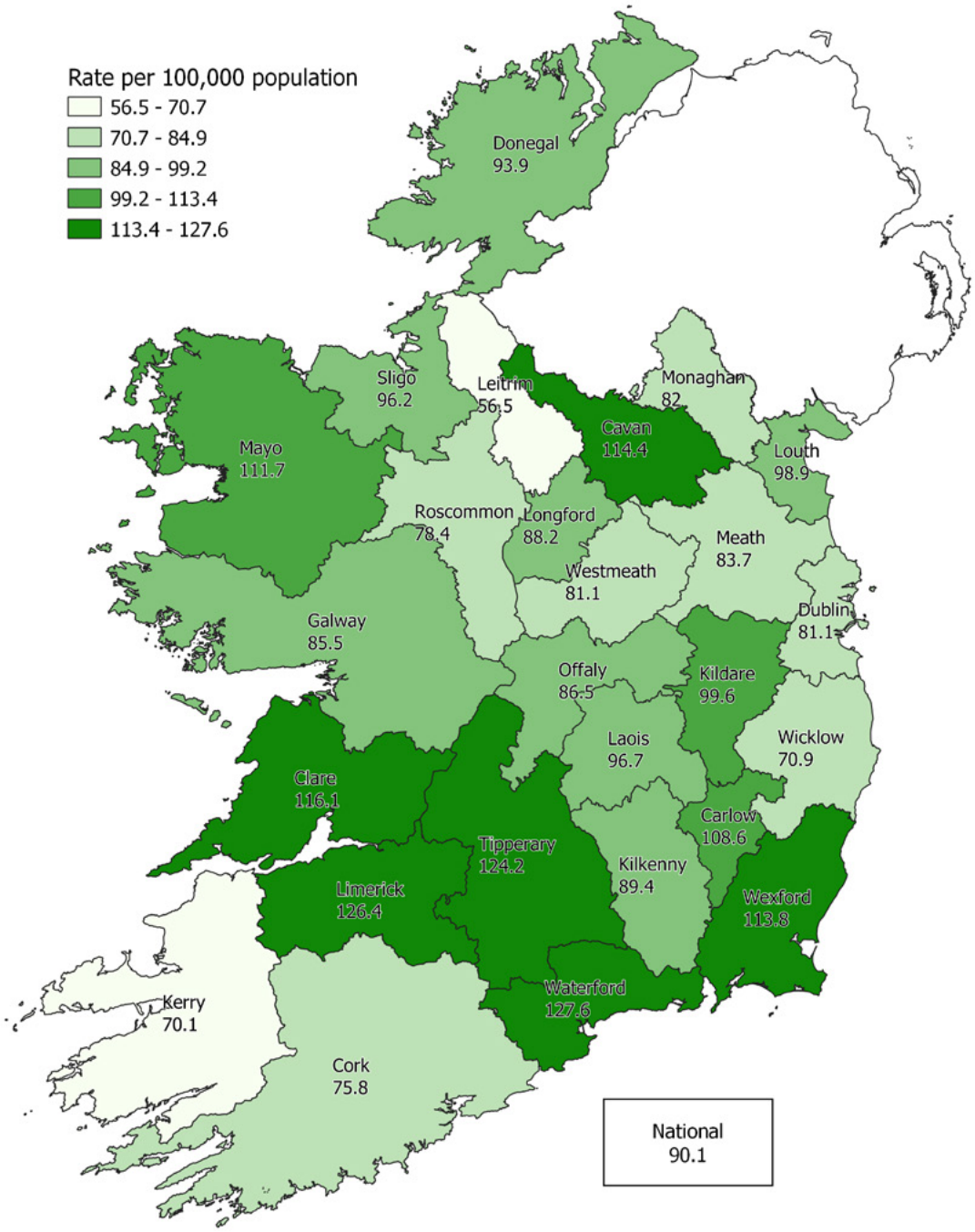


[1] Estimated value; [2] 2020; [3] 2019; [4] 2018; [5] 2017

Source: OECD Health Statistics.

Notes:
(i) Differences in coding practices among countries and the definition of an admission may affect the comparability of data. Differences in disease classification systems, for example between ICD-9-CM and ICD-10-AM/ACHI, may also affect data comparability. 95% confidence intervals represented by ⊢.
(ii) Nine countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.
(iii) OECD (32) average based on latest available year's data for countries which have reported for 2016 or later.

Figure 2.9: Age-sex standardised hospitalisation rates for diabetes per 100,000 population by county of residence, 2019-2021



Source: Hospital In-Patient Enquiry (HIPE)

Table 2.3: Age-sex standardised hospitalisation rates for diabetes per 100,000 population by county of residence, 2019-2021

County of Residence	Number of Cases	Age-sex Standardised Admission Rate	Lower 95% Confidence Limit for Admission Rate	Upper 95% Confidence Limit for Admission Rate
Carlow	154	108.6	91.4	125.9
Cavan	219	114.4	99.1	129.7
Clare	313	116.1	103.0	129.1
Cork	1043	75.8	71.2	80.4
Donegal	387	93.9	84.4	103.5
Dublin	2641	81.1	78.0	84.3
Galway	550	85.5	78.3	92.7
Kerry	272	70.1	61.6	78.6
Kildare	504	99.6	90.6	108.5
Kilkenny	227	89.4	77.7	101.2
Laois	233	96.7	84.1	109.3
Leitrim	55	56.5	41.2	71.7
Limerick	553	126.4	115.8	137.0
Longford	111	88.2	71.6	104.7
Louth	313	98.9	87.8	109.9
Mayo	408	111.7	100.6	122.8
Meath	378	83.7	75.1	92.3
Monaghan	129	82.0	67.8	96.3
Offaly	214	86.5	74.8	98.2
Roscommon	145	78.4	65.4	91.5
Sligo	171	96.2	81.5	110.9
Tipperary	460	124.2	112.7	135.7
Waterford	392	127.6	114.8	140.3
Westmeath	223	81.1	70.4	91.8
Wexford	445	113.8	103.1	124.5
Wicklow	258	70.9	62.1	79.7
Ireland	10,798	90.1	88.4	91.8

Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Data refer to the average annual age-sex standardised hospitalisation rate per 100,000 population from 2019-2021.
(ii) Data for previous years differs from data presented in previous NHQRS reports. This is due to methodological updates which have been backdated to previous years' data.

Heart failure hospitalisation rates

Definition
The age-sex standardised hospitalisation rate per 100,000 population for people aged 15 years and older with a principal diagnosis of heart failure.

Description
Heart failure is a condition where the heart does not function as well as it should. Heart failure can be caused by a number of different conditions including ischaemic heart disease, hypertension (high blood pressure), disease of the heart valves and congenital heart disease.

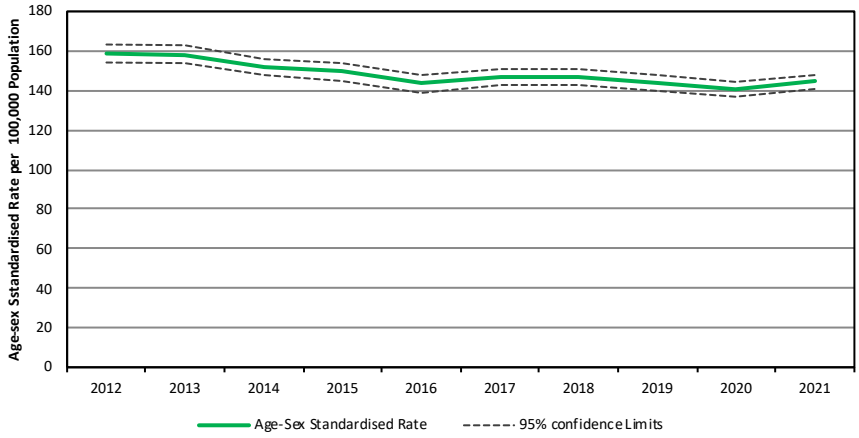
Heart failure can lead to many complications over the longer term, including irregular heart rhythms, stroke, kidney failure and anaemia. Patients with heart failure may be hospitalised for complications. It is important to note that not all hospitalisations are avoidable, and they may be clinically appropriate.

Rationale for the inclusion of indicator
It has been estimated that approximately 2% of the population (90,000 people) in Ireland have heart failure which causes them symptoms (e.g., fluid retention, breathlessness, and tiredness) and that another 2-4% (160,000 people) are at risk of developing heart failure [8].

Commentary
- The national age-sex standardised hospitalisation rate for heart failure decreased between 2012 and 2021, from 158.7 hospitalisations per 100,000 population in 2012 to 144.4 per 100,000 population in 2021 – a 9% decrease over the ten-year period. There was a 2.2% decline between 2019 and 2020, followed by a 2.7% increase in the rate to 2021. The reasons for this pattern are unclear. In addition to the cancellation of routine scheduled care appointments during the first wave of COVID-19, a 60% reduction in all emergency admissions for cardiovascular disease was noted. [9]
- In the latest data reported by the OECD, the age-sex standardised hospitalisation rate for Ireland was 143.1 hospitalisations per 100,000 population,[1] which was statistically significantly below the OECD average of 209.7 hospitalisations per 100,000 population. However, it should be noted that Ireland was one of nine countries who provided data for 2020, while data for all other countries refer to earlier (pre-Covid) years.
- During the three-year period from 2019-2021, the age-sex standardised hospitalisation rate for heart failure by county of residence ranged from 114.9 hospitalisations per 100,000 population in Kerry, to 204.8 per 100,000 population in Sligo. The national rate was 142.9 per 100,000 population. The reasons for the variation seen between areas require further investigation.
- There are a number of potential explanations for the variation seen, both between Ireland and other countries, and between counties in Ireland, and it should not be concluded that higher or lower rates are a reflection on the quality of care provided in primary and community care settings. The reasons potentially include, but are not limited to, issues related to the quality of the data, differences in the prevalence of risk factors and chronic conditions in the population, the availability of services at primary and community care level, access to specific treatments, and the availability of hospital beds.

1 An error has been discovered in the calculation of the hospitalisation rate for Congestive Heart Failure submitted to the OECD for 2020. The rate will be corrected in future updates of the OECD database. The corrected rate for 2020 was 140.6 and the correction does not impact on Ireland's relative position among OECD countries.

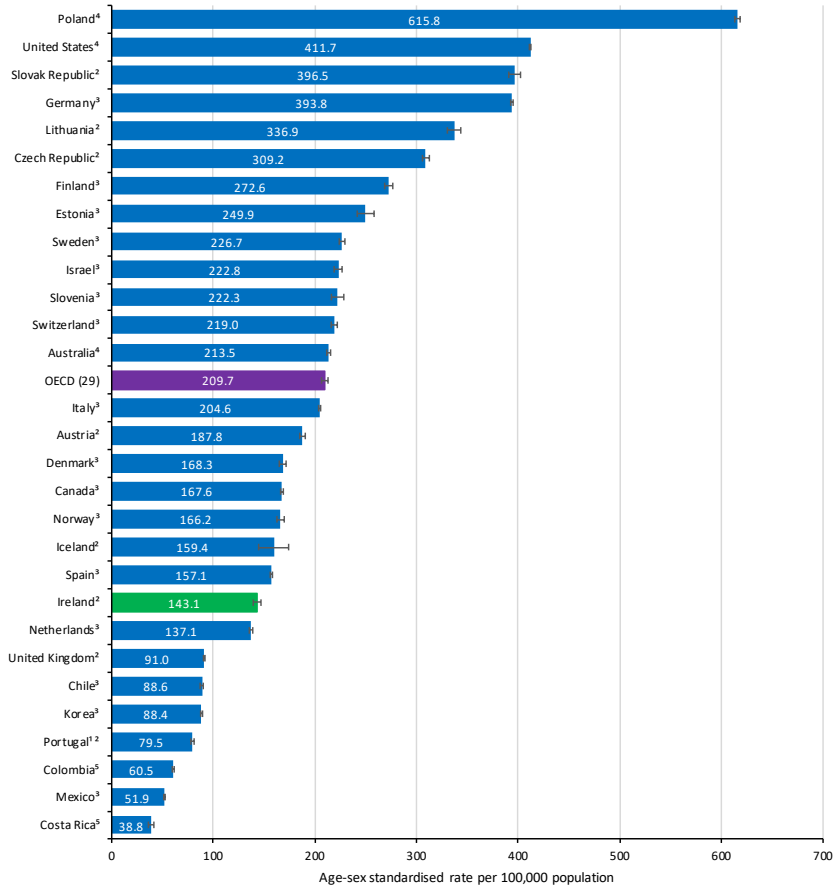
Figure 2.10: Age-sex standardised hospitalisation rates for heart failure per 100,000 population in Ireland, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Data for previous years differs from data presented in previous NHQRS reports. This is due to methodological updates which have been backdated to previous years' data.
(ii) From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. This is likely to have had an impact on the rate of hospitalisations in 2020 and 2021.

Figure 2.11: Age-sex standardised hospitalisation rates for heart failure per 100,000 population (15 years or older) for selected OECD countries, 2020 (or nearest year)

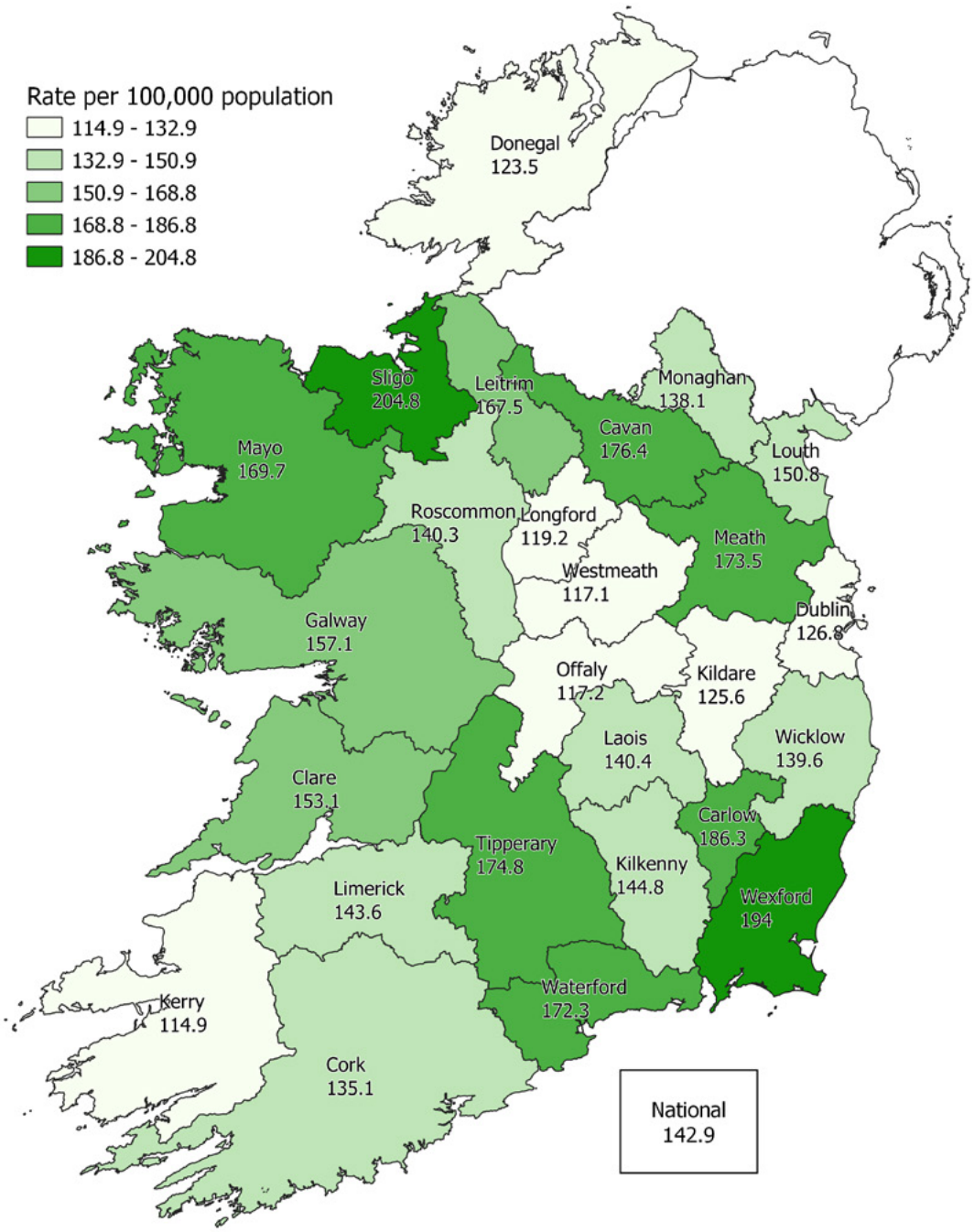


[1] Estimated value; [2] 2020; [3] 2019; [4] 2018; [5] 2017

Source: OECD Health Statistics.

Notes:
(i) Differences in coding practices among countries and the definition of an admission may affect the comparability of data. Differences in disease classification systems, for example between ICD-9-CM and ICD-10-AM/ACHI, may also affect data comparability. 95% confidence intervals represented by ⊢.
(ii) Eight countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.
(iii) OECD (29) average based on latest available year's data for countries which have reported for 2016 or later.

Figure 2.12: Age-sex standardised hospitalisation rates for heart failure per 100,000 population by county of residence, 2019-2021



Source: Hospital In-Patient Enquiry (HIPE)

Table 2.4: Age-sex standardised hospitalisation rates for heart failure per 100,000 population by county of residence, 2019-2021

County of Residence	Number of Cases	Age-sex Standardised Admission Rate	Lower 95% Confidence Limit for Admission Rate	Upper 95% Confidence Limit for Admission Rate
Carlow	251	186.3	163.0	209.5
Cavan	342	176.4	157.5	195.2
Clare	408	153.1	138.1	168.1
Cork	1,811	135.1	128.9	141.4
Donegal	540	123.5	112.9	134.0
Dublin	3,787	126.8	122.8	130.9
Galway	978	157.1	147.2	167.0
Kerry	492	114.9	104.7	125.2
Kildare	497	125.6	114.3	136.8
Kilkenny	371	144.8	130.0	159.6
Laois	310	140.4	124.5	156.4
Leitrim	166	167.5	141.9	193.2
Limerick	600	143.6	132.0	155.2
Longford	150	119.2	100.0	138.3
Louth	454	150.8	136.9	164.6
Mayo	691	169.7	156.9	182.4
Meath	665	173.5	160.1	186.8
Monaghan	220	138.1	119.8	156.3
Offaly	299	117.2	103.8	130.6
Roscommon	299	140.3	124.2	156.4
Sligo	386	204.8	184.3	225.2
Tipperary	688	174.8	161.7	187.9
Waterford	524	172.3	157.5	187.1
Westmeath	302	117.1	103.8	130.4
Wexford	753	194.0	180.0	207.9
Wicklow	484	139.6	127.0	152.1
Ireland	16,468	142.9	140.7	145.1

Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Data refer to the average annual age-sex standardised hospitalisation rate per 100,000 population from 2019-2021.
(ii) Data for previous years differs from data presented in previous NHQRS reports. This is due to methodological updates which have been backdated to previous years' data.

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Domain 2 indicators metadata

Indicator	COPD hospitalisation rates
Definition	The age-sex standardised rate of hospitalisations of people aged 15 years and older with a principal diagnosis of chronic obstructive pulmonary disease (COPD) per 100,000 population.
Years Covered	National trend: 2012 – 2021 OECD comparison: 2020 (or nearest year) County of residence: 2019 – 2021 (aggregated)
Classification	ICD-10-AM J41, J42, J43, J44, J47 or J40 with a secondary diagnosis of J41, J43, J44 or J47
Methodology	**Numerator:** Number of hospital discharges with a principal diagnosis of COPD in a specified year, ages 15 and over. **Denominator:** Population aged 15 years and older. **Exclusions:** i. Cases transferred in from another acute hospital. ii. Cases in Major Diagnostic Categories 14 (Pregnancy, Childbirth & Puerperium) or 15 (Newborns & Other Neonates). ii. Cases that are discharged on the day of admission. iii. Cases where the patient died in hospital during the admission. iv. Cases who were not residents of Ireland. Also, for county level rates, cases recorded as having no fixed abode. **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality and Outcomes (HCQO) data collection. The definition of the indicator is available here https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf Age-sex standardised rates facilitate comparison of rates between populations of different age composition (for example hospitals or countries) and also of rates over time. The age-sex standardised rate is the number of cases per 100,000 population that would occur if the county or year had the same age structure as the OECD Standard Population and the local age-sex specific rates applied. Age-sex standardised rates and associated confidence limits are calculated as follows: i. The number of cases in the numerator and the population (i.e., the denominator) are calculated by males and females for each 5-year age-group from 15-19 to 85+ years. ii. Age & sex specific rates are calculated for males and females for each age-group. iii. The age & sex specific rates are multiplied by the number of cases in the OECD standard population (based on the total OECD population in 2010). iv. The age-sex standardised hospitalisation rate (ASR) is then calculated as the sum of the age & sex specific rates multiplied by the standard population and divided by the total number of cases in the standard population. v. Upper and lower confidence intervals are presented at the 95% confidence level and are calculated by ASR ± 1.96 * Standard Error of ASR where the standard error is determined from a binomial distribution. Note that the age-sex standardised hospitalisation rates at county of residence level for 2019 to 2021 refer to the average annual rate over the three-year period.
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code." [10] Data are based on discharges from publicly funded acute hospitals; private hospitals are not included. A small number of non-acute hospitals that are not included in the hospital groups participate in HIPE for historical reasons; these hospitals have been removed from this analysis. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease. 95% confidence intervals have been produced and these should be considered when interpreting the age-standardised rates. Where the lower limit of the 95% confidence interval is above the upper 95% confidence limit of the national rate, it can be said that the rate is statistically significantly higher than the national rate at the 95% confidence level. Similarly, where the upper limit of the 95% confidence interval is below the lower 95% confidence limit of the national rate, it can be said that the rate is statistically significantly lower than the national rate at the 95% confidence level. Note that areas with small numbers of cases tend to have unstable rates and wider confidence intervals. Caution should be exercised in interpreting rates with wide confidence intervals. Population estimates for years 2012-2016 were revised following the release of Census 2016 results. There have also been a number of methodological updates in relation to exclusions. Hospitalisation rates published here are therefore not directly comparable to earlier NHQRS publications.
Data Source(s)	**Hospital In-Patient Enquiry (HIPE)** The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie The data presented for this indicator are based on analysis of HIPE data carried out by the Department of Health using the definitions and methodology developed by the OECD Health Care Quality and Outcomes (HCQO) project. **OECD Health Statistics**

Indicator	Asthma hospitalisation rates
Definition	The age-sex standardised rate of hospitalisations of people aged 15 years and older with a principal diagnosis of asthma per 100,000 population.
Years Covered	National trend: 2012 – 2021 OECD comparison: 2020 (or nearest year) County of residence: 2019-2021 (aggregated)
Classification	ICD-10-AM J45 or J46
Methodology	**Numerator:** Number of hospital discharges with a principal diagnosis of asthma in a specified year, ages 15 and over. **Denominator:** Population aged 15 years and older. **Exclusions:** i. Cases transferred in from another acute hospital. ii. Cases in Major Diagnostic Categories 14 (Pregnancy, Childbirth & Puerperium) or 15 (Newborns & Other Neonates). iii. Cases with any diagnosis code of cystic fibrosis and anomalies of the respiratory system [ICD-10-AM E84, P27, Q25.4, Q31.1 - Q34.9, Q39.0 - Q39.4, Q39.8, Q89.3]. iv. Cases that are discharged on the day of admission. v. Cases where the patient died in hospital during the admission. vi. Cases who were not residents of Ireland. Also, for county level rates, cases recorded as having no fixed abode. **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality and Outcomes (HCQO) data collection. The definition of the indicator is available here https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf Age-sex standardised rates facilitate comparison of rates between populations of different age composition (for example hospitals or countries) and also of rates over time. The age-sex standardised rate is the number of cases per 100,000 population that would occur if the county or year had the same age structure as the OECD Standard Population and the local age-sex specific rates applied. Age-sex standardised rates and associated confidence limits are calculated as follows: i. The number of cases in the numerator and the population (i.e., the denominator) are calculated by males and females for each 5-year age-group from 15-19 to 85+ years. ii. Age & sex specific rates are calculated for males and females for each age-group. iii. The age & sex specific rates are multiplied by the number of cases in the OECD standard population (based on the total OECD population in 2010). iv. The age-sex standardised hospitalisation rate (ASR) is then calculated as the sum of the age & sex specific rates multiplied by the standard population and divided by the total number of cases in the standard population. v. Upper and lower confidence intervals are presented at the 95% confidence level and are calculated by ASR ± 1.96 * Standard Error of ASR where the standard error is determined from a binomial distribution. Note that the age-sex standardised hospitalisation rates at county of residence level for 2019 to 2021 refer to the average annual rate over the three-year period.
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code." [10] Data are based on discharges from publicly funded acute hospitals; private hospitals are not included. A small number of non-acute hospitals that are not included in the hospital groups participate in HIPE for historical reasons; these hospitals have been removed from this analysis. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease. 95% confidence intervals have been produced and these should be considered when interpreting the age-standardised rates. Where the lower limit of the 95% confidence interval is above the upper 95% confidence limit of the national rate, it can be said that the rate is statistically significantly higher than the national rate at the 95% confidence level. Similarly, where the upper limit of the 95% confidence interval is below the lower 95% confidence limit of the national rate, it can be said that the rate is statistically significantly lower than the national rate at the 95% confidence level. Note that areas with small numbers of cases tend to have unstable rates and wider confidence intervals. Caution should be exercised in interpreting rates with wide confidence intervals. Population estimates for years 2012-2016 were revised following the release of Census 2016 results. There have also been a number of methodological updates in relation to exclusions. Hospitalisation rates published here are therefore not directly comparable to earlier NHQRS publications.
Data Source(s)	**Hospital In-Patient Enquiry (HIPE)** The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie. The data presented for this indicator are based on analysis of HIPE data carried out by the Department of Health using the definitions and methodology developed by the OECD Health Care Quality and Outcomes (HCQO) project. **OECD Health Statistics**

Indicator	Diabetes hospitalisation rates
Definition	The age-sex standardised rate of hospitalisations of people aged 15 years and older with a principal diagnosis of diabetes per 100,000 population.
Years Covered	National trend: 2012– 2021 OECD comparison: 2020 (or nearest year) County of residence: 2019 – 2021 (aggregated)
Classification	ICD-10-AM E10–E14
Methodology	**Numerator:** Number of hospital discharges with a principal diagnosis of diabetes in a specified year, ages 15 and over. **Denominator:** Population aged 15 years and older. **Exclusions:** i. Cases transferred in from another acute hospital. ii. Cases in Major Diagnostic Categories 14 (Pregnancy, Childbirth & Puerperium) or 15 (New-borns & Other Neonates). iii. Cases that are discharged on the day of admission. iv. Cases where the patient died in hospital during the admission. v. Cases who were not residents of Ireland. Also, for county level rates, cases recorded as having no fixed abode. **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality and Outcomes (HCQO) data collection. The definition of the indicator is available here https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf Age-sex standardised rates facilitate comparison of rates between populations of different age composition (for example hospitals or countries) and also of rates over time. The age-sex standardised rate is the number of cases per 100,000 population that would occur if the county or year had the same age structure as the OECD Standard Population and the local age sex specific rates applied. Age-sex standardised rates and associated confidence limits are calculated as follows: The number of cases in the numerator and the population (i.e., the denominator) are calculated by males and females for each 5-year age-group from 15-19 to 85+ years. ii. Age & sex specific rates are calculated for males and females for each age-group. iii. The age & sex specific rates are multiplied by the number of cases in the OECD standard population (based on the total OECD population in 2010). iv. The age-sex standardised hospitalisation rate (ASR) is then calculated as the sum of the age & sex specific rates multiplied by the standard population and divided by the total number of cases in the standard population. v. Upper and lower confidence intervals are presented at the 95% confidence level and are calculated by ASR ± 1.96 * Standard Error of ASR where the standard error is determined from a binomial distribution. Note that the age-sex standardised hospitalisation rates at county of residence level for 2019 to 2021 refer to the average annual rate over the three-year period.
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code." [10] Data are based on discharges from publicly funded acute hospitals; private hospitals are not included. A small number of non-acute hospitals that are not included in the hospital groups participate in HIPE for historical reasons; these hospitals have been removed from this analysis. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease. 95% confidence intervals have been produced and these should be considered when interpreting the age-standardised rates. Where the lower limit of the 95% confidence interval is above the upper 95% confidence limit of the national rate, it can be said that the rate is statistically significantly higher than the national rate at the 95% confidence level. Similarly, where the upper limit of the 95% confidence interval is below the lower 95% confidence limit of the national rate, it can be said that the rate is statistically significantly lower than the national rate at the 95% confidence level. Note that areas with small numbers of cases tend to have unstable rates and wider confidence intervals. Caution should be exercised in interpreting rates with wide confidence intervals. In 2015, an update to the coding system from ICD-10-AM from 6th to 8th edition resulted in a change in how diabetes is reported in HIPE. Hence the rates for 2015 and subsequent years are not directly comparable with those from previous years. Population estimates for years 2012-2016 were revised following the release of Census 2016 results. There have also been a number of methodological updates in relation to exclusions. Hospitalisation rates published here are therefore not directly comparable to earlier NHQRS publications.
Data Source(s)	**Hospital In-Patient Enquiry (HIPE)** The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie The data presented for this indicator are based on analysis of HIPE data carried out by the Department of Health using the definitions and methodology developed by the OECD Health Care Quality Indicators (HCQI) project. **OECD Health Statistics**

Indicator	Heart failure hospitalisation rates
Definition	The age-sex standardised rate of hospitalisations of people aged 15 years and older with a principal diagnosis of heart failure per 100,000 population.
Years Covered	National trend: 2012 – 2021 OECD comparison: 2020 (or nearest year) County of residence: 2019 – 2021 (aggregated)
Classification	ICD-10-AM I11.0, I13.0, I13.2, I50.0, I50.1 or I50.9
Methodology	**Numerator:** Number of hospital discharges with a principal diagnosis of heart failure in a specified year, ages 15 and over. **Denominator:** Population aged 15 years and older. **Exclusions:** i. Cases transferred in from another acute hospital. ii. Cases in Major Diagnostic Categories 14 (Pregnancy, Childbirth & Puerperium) or 15 (Newborns & Other Neonates). iii. Cases that are discharged on the day of admission. iv. Cases where the patient died in hospital during the admission. v. Cases who underwent a cardiac procedure during the admission. vi. Cases who were not residents of Ireland. Also, for county level rates, cases recorded as having no fixed abode. **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality and Outcomes (HCQO) data collection. The definition of the indicator is available here https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf Age-sex standardised rates facilitate comparison of rates between populations of different age composition (for example hospitals or countries) and also of rates over time. The age-sex standardised rate is the number of cases per 100,000 population that would occur if the county or year had the same age structure as the OECD Standard Population and the local age-sex specific rates applied. Age-sex standardised rates and associated confidence limits are calculated as follows: i. The number of cases in the numerator and the population (i.e., the denominator) are calculated by males and females for each 5-year age-group from 15-19 to 85+ years. ii. Age & sex specific rates are calculated for males and females for each age-group. iii. The age & sex specific rates are multiplied by the number of cases in the OECD standard population (based on the total OECD population in 2010). iv. The age-sex standardised hospitalisation rate (ASR) is then calculated as the sum of the age & sex specific rates multiplied by the standard population and divided by the total number of cases in the standard population. v. Upper and lower confidence intervals are presented at the 95% confidence level and are calculated by ASR ± 1.96 * Standard Error of ASR where the standard error is determined from a binomial distribution. Note that the age-sex standardised hospitalisation rates at county of residence level for 2019 to 2021 refer to the average annual rate over the three-year period.
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code." [10] Data are based on discharges from publicly funded acute hospitals; private hospitals are not included. A small number of non-acute hospitals that are not included in the hospital groups participate in HIPE for historical reasons; these hospitals have been removed from this analysis. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease. 95% confidence intervals have been produced and these should be considered when interpreting the age-standardised rates. Where the lower limit of the 95% confidence interval is above the upper 95% confidence limit of the national rate, it can be said that the rate is statistically significantly higher than the national rate at the 95% confidence level. Similarly, where the upper limit of the 95% confidence interval is below the lower 95% confidence limit of the national rate, it can be said that the rate is statistically significantly lower than the national rate at the 95% confidence level. Note that areas with small numbers of cases tend to have unstable rates and wider confidence intervals. Caution should be exercised in interpreting rates with wide confidence intervals. Population estimates for years 2012-2016 were revised following the release of Census 2016 results. There have also been a number of methodological updates in relation to exclusions. Hospitalisation rates published here are therefore not directly comparable to earlier NHQRS publications.
Data Source(s)	**Hospital In-Patient Enquiry (HIPE)** The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie. The data presented for this indicator are based on analysis of HIPE data carried out by the Department of Health using the definitions and methodology developed by the OECD Health Care Quality and Outcomes (HCQO) project. **OECD Health Statistics**

3

Domain 3: Helping people when they are being treated and cared for in our health services

Overview of selected indicators

There are 13 indicators[1] in this domain in the following 3 areas:

- Cancer survival rates
- Cancer surgery
- Acute hospital care

Cancer survival rates

Cancer survival is one of the key measures of the effectiveness of cancer care, taking into account both early detection of the disease and the effectiveness of treatment. Organised screening programmes for specific cancers, shorter waiting times, and the provision of evidence-based treatment are associated with improved survival [1]. Cancer survival rates are reported by the National Cancer Registry Ireland (NCRI) and the Organisation for Economic Co-operation and Development (OECD). In this annual report, survival rates for breast, cervical, colorectal and lung cancers are compared between Ireland and other OECD countries and also between regions of Ireland.

The indicators for cancer survival rates are:

- Breast cancer survival rates
- Cervical cancer survival rates
- Colorectal cancer survival rates
- Lung cancer survival rates

Cancer surgery rates

Surgical treatment plays a pivotal role in cancer care; it can be preventative, diagnostic, curative, supportive, palliative and/or reconstructive. Centralisation of cancer surgical services for many types of cancer is supported by international evidence [2], [3]. High quality care is provided, not only by high volume, specialised surgeons, but also by the availability of specialist knowledge across the multidisciplinary team (e.g. intensive care, nursing and Health & Social Care Professionals) [4], [5], [6].

Following the 2006 National Cancer Strategy, eight designated cancer centres were identified around Ireland, with an additional satellite unit linked to one centre for breast cancer. It was envisaged that all cancer surgery would be centralised to these eight locations. In July 2017, the Department of Health published the National Cancer Strategy, 2017-2026. Further detail on optimal cancer service delivery and centralisation has been included in this Strategy.

The indicators for cancer surgery are:

- Breast cancer surgical activity
- Colon cancer surgical activity
- Rectal cancer surgical activity

[1] See Metadata Sheets at the end of this Domain for detailed definitions and methodology for the calculation of the indicators.

Acute Hospital Care

Stroke care

Stroke is a leading cause of morbidity and mortality globally. In Ireland, over 7,000 patients are admitted to hospital each year with a stroke diagnosis. To improve morbidity and mortality outcomes, international evidence recommends that all stroke patients, on diagnosis, should be admitted to a properly equipped stroke unit, staffed by a trained multidisciplinary team [7]. The COVID-19 pandemic was a challenge to acute stroke care as reconfiguration of the bed base for infection control and redeployment of specialist stroke staff happened in many sites as part of the crisis response. Initial audit data suggested a public behavioural change, with patients presenting later to hospital after onset of symptoms, but faster door to doctor times in ED, and shorter lengths of stay in stroke unit beds [8]. All had the potential to affect mortality and outcomes. The National Clinical Programme for Stroke issued advice through the HSE repository on the management of Stroke during COVID, advocating strongly for retained stroke unit bed base, retention of specialist stroke staff in their roles, and detailing safe admission procedures for stroke patients during the pandemic.

In-hospital mortality rates

International experts consider in-hospital mortality rates may be useful high-level indicators of quality of when used in association with other measures of quality of care [9]. In this report in-hospital mortality indicators for heart attack [acute myocardial infarction (AMI)], haemorrhagic stroke (caused by bleeding) and ischaemic stroke (caused by a blood clot) are included. The two different types of stroke require different treatments and therefore early assessment of the cause of stroke is essential to ensure appropriate quality care. While in-hospital mortality rates are calculated in line with OECD methodologies to allow for comparison between countries, it must be noted that there are limitations associated with these three mortality indicators and these are discussed in the relevant section.

The indicators for in-hospital mortality are:

- In-hospital mortality within 30 days for acute myocardial infarction
- In-hospital mortality within 30 days for haemorrhagic stroke
- In-hospital mortality within 30 days for ischaemic stroke.

In-hospital waiting time for hip fracture surgery

While it is acknowledged that not all patients who experience a hip fracture will be suitable for immediate surgery (for example, because of other medical conditions which may need to be stabilised prior to surgery), it is also recognised that minimising the time between admission to hospital and performance of surgery results in better outcomes for patients. The time to hip fracture surgery is used internationally as a measure of quality of care and is included in this report.

Caesarean section rates

Most professional associations of obstetricians and gynaecologists encourage the promotion of normal childbirth without interventions such as caesarean sections [10]. High rates of caesarean section have been associated with increased rates of maternal death, maternal and infant morbidity, and increased risk of complications in subsequent pregnancies [11], [12]. Internationally, caesarean section rates are considered an important measure of the quality of maternity services and are, therefore, publicly reported. Caesarean section rates for relevant hospitals in Ireland are included in this report.

Note on 2020 and 2021 data

The unprecedented impact of the COVID-19 pandemic on the health service and the rapid national response which was mounted had a huge impact on normal service delivery across the health and social care system. From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. As a result of these direct impacts of COVID-19 on the health and social care service, hospital activity in both 20201 and 2021 was extensively affected. Behavioural change among the public as a result of fear and healthcare avoidance, particularly during the early months of the pandemic, may also have impacted on attendance during this time. For patients with other illnesses and injuries who continued to present to hospitals, there were significant challenges to well-established pathways of care. These factors should be taken into consideration when reviewing 2020 and 2021 data in this domain and throughout the report.

Breast cancer survival rates

Definition

Age-standardised estimates of cumulative 5-year net survival in Ireland and OECD countries for female breast cancer patients diagnosed in five time period cohorts from 1994 to 2018.

Description

Breast cancer is the most common malignant tumour diagnosed in women in Ireland, with approximately 3,500 cases diagnosed each year during 2017-2019 – this represents almost one third of all major cancers diagnosed in women.

Cases of invasive breast cancer increased significantly, though unevenly, during 1994-2019. Ranging from an annual percentage change between 2002-2005 of 0.8% to an annual growth of 7.7% during 2005-2008. For the most recent period (2014-2019) the annual percentage growth was 4.1%. The pattern of overall incidence trends for invasive breast cancer has been strongly influenced by the BreastCheck Screening Programme, initially covering ages 50-64, in the eastern half of the country from 2000 and the rest of the country by 2007. This is evident from two mid-range peaks in incidence rates which followed the two roll-out phases. Phased extension of BreastCheck to age 69 began in late 2015, but it is not yet clear to what extent this may have influenced the most recent trends. [13].

Although survival from breast cancer is high, it remains the second most common cause of cancer death in women (after lung cancer) accounting for 18% of cancer deaths among females.

Breast cancer survival reflects advances in treatments, as well as public health interventions to detect the disease early through BreastCheck Screening and greater awareness of the disease. The introduction of new evidence-based treatment regimens and screening programmes has improved survival rates for breast cancer in the last few years, as well as improving quality of life for survivors.

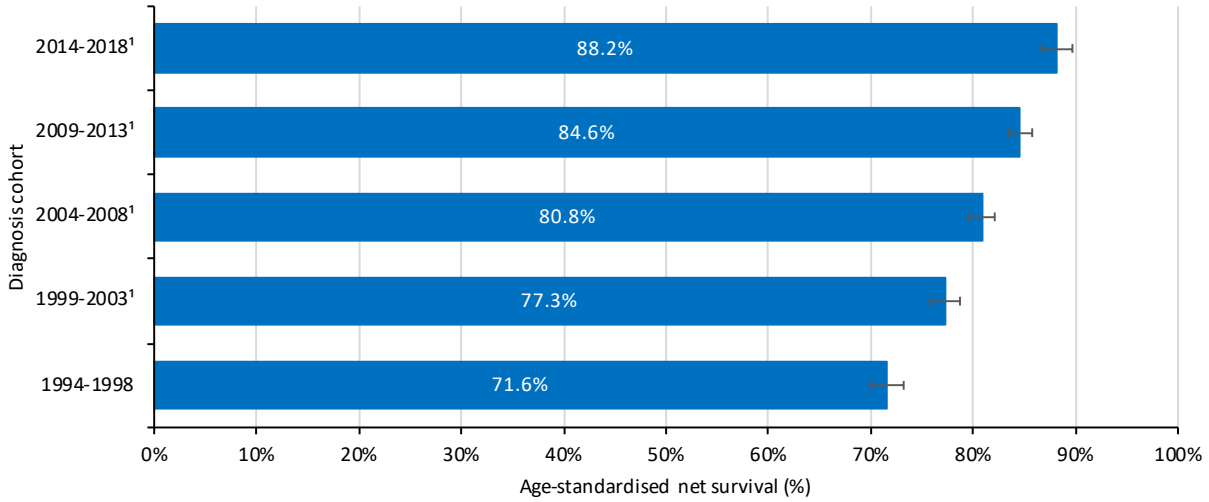
Rationale for the inclusion of indicator

One in seven women will develop breast cancer at some point in their life.

Commentary

- The 5-year age-standardised net survival from breast cancer for the cohort diagnosed in 2014 to 2018 was 88.2% nationally. The net survival from breast cancer has improved incrementally over four five-year cohorts up from 71.6% from the 1994-1998 cohort. There was a statistically significant difference in the net survival rate for the cohort diagnosed in 2014 to 2018 in comparison to the cohort diagnosed in 2009 to 2013.
- In comparison to OECD countries, the 5-year age-standardised net survival rate for breast cancer in Ireland for the period 2010-2014 was 82% which was below the OECD average (84.3%), although this difference was not statistically significant.
- It is important to note that there may be variations between countries due to difference in their coding practices, in the definitions and disease classification systems used. This needs to be taken into account when comparing countries.

Figure 3.1: Cumulative 5-year age-standardised net survival in Ireland for female breast cancer patients diagnosed in five time period cohorts from 1994 to 2018



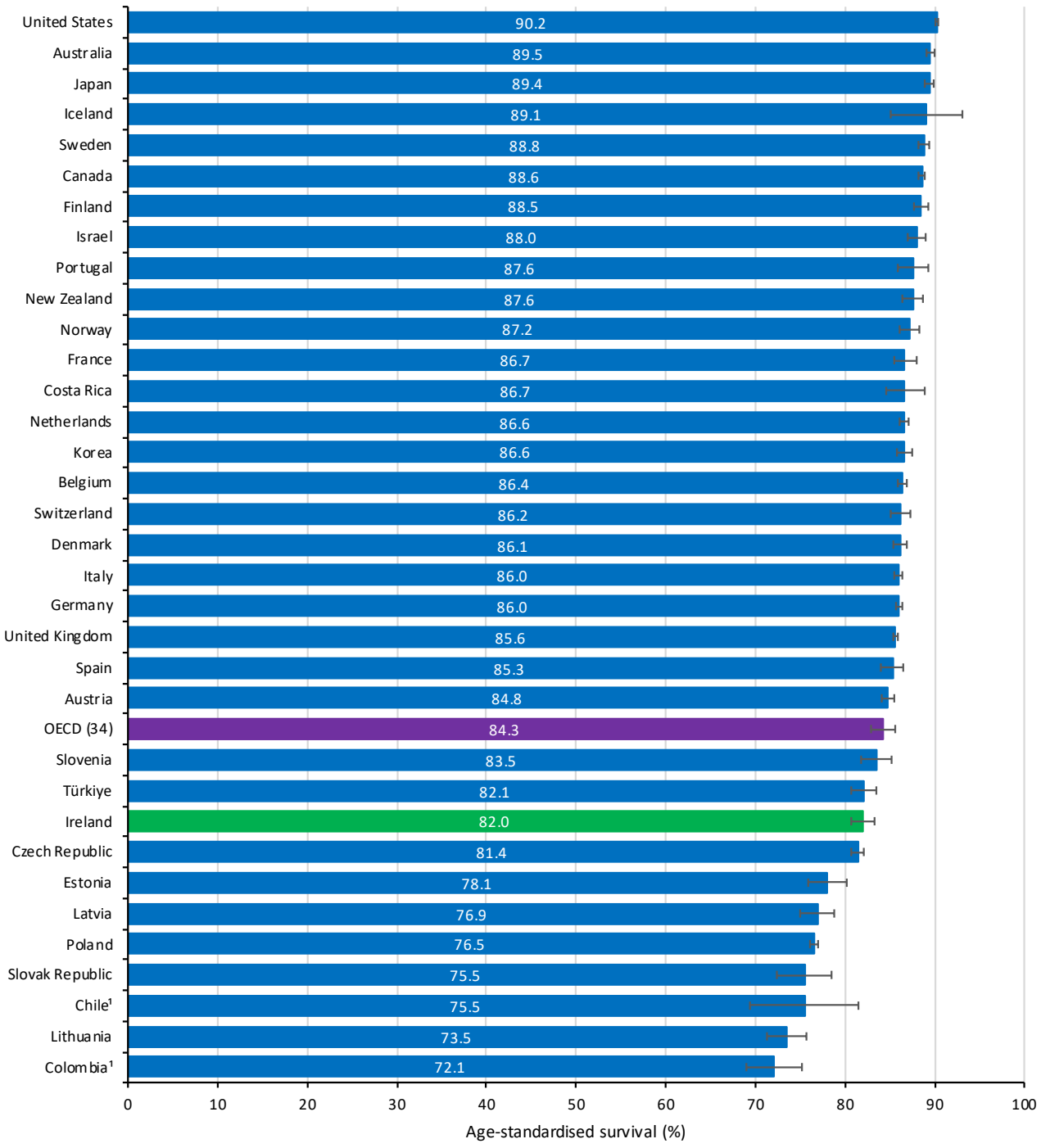
[1] There was a statistically significant difference in the net survival rate for this cohort compared with the previous cohort.

Source: National Cancer Registry Ireland, August 2022

Notes:
(i) Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata.
(ii) Cancer registration is a dynamic process and information is continually updated on the NCRI database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.

Exclusions:
Patients aged <15 or >99 at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour.

Figure 3.2: Cumulative 5-year age-standardised net survival (females 15 years and older), breast cancer, 2010-2014, OECD countries



[1] Different methodology.

Source: OECD Health Statistics.

Notes: Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves. 95% confidence intervals represented by ⊢⊣.

Cervical cancer survival rates

Definition

Age-standardised estimates of cumulative 5-year net survival in Ireland and OECD countries for cervical cancer patients diagnosed in five time period cohorts from 1994 to 2018.

Description

Cervical cancer survival reflects advances in treatments, as well as public health interventions to detect the disease early through CervicalCheck Screening and greater awareness of the disease.

For patients diagnosed with cancer, a period approach is used, which allows estimation of 5-year survival, although five years of follow-up are not available for all patients.

Rationale for the inclusion of indicator

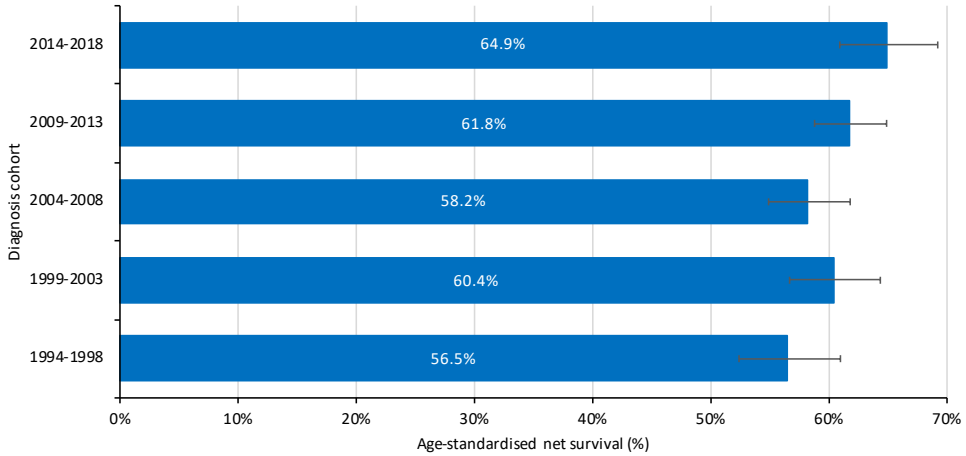
Every year in Ireland

- 6,500 women need hospital treatment for a precancerous cervical growth
- About 290 (many young) women get cervical cancer
- Almost 90 women die from cervical cancer. [14]

Commentary

- The 5-year age-standardised net survival from cervical cancer for the cohort diagnosed in 2014 to 2018 was 64.9% nationally. The net survival from cervical cancer has improved incrementally over the past three 5-year cohorts up from 58.2% for the 2004-2008 cohort. These changes were not statistically significant.
- In comparison to OECD countries, the 5-year age-standardised net survival rate for cervical cancer in Ireland (63.6%) for the period 2010- 2014 was below the OECD average (65.5%), although this difference was not statistically significant.
- It is important to note that there may be variations between countries due to difference in their coding practices, in the definitions and disease classification systems used. This needs to be taken into account when comparing the countries.

Figure 3.3: Cumulative 5-year age-standardised net survival in Ireland for female cervical cancer patients diagnosed in five time period cohorts from 1994 to 2018



Source: National Cancer Registry Ireland, August 2022

Notes:

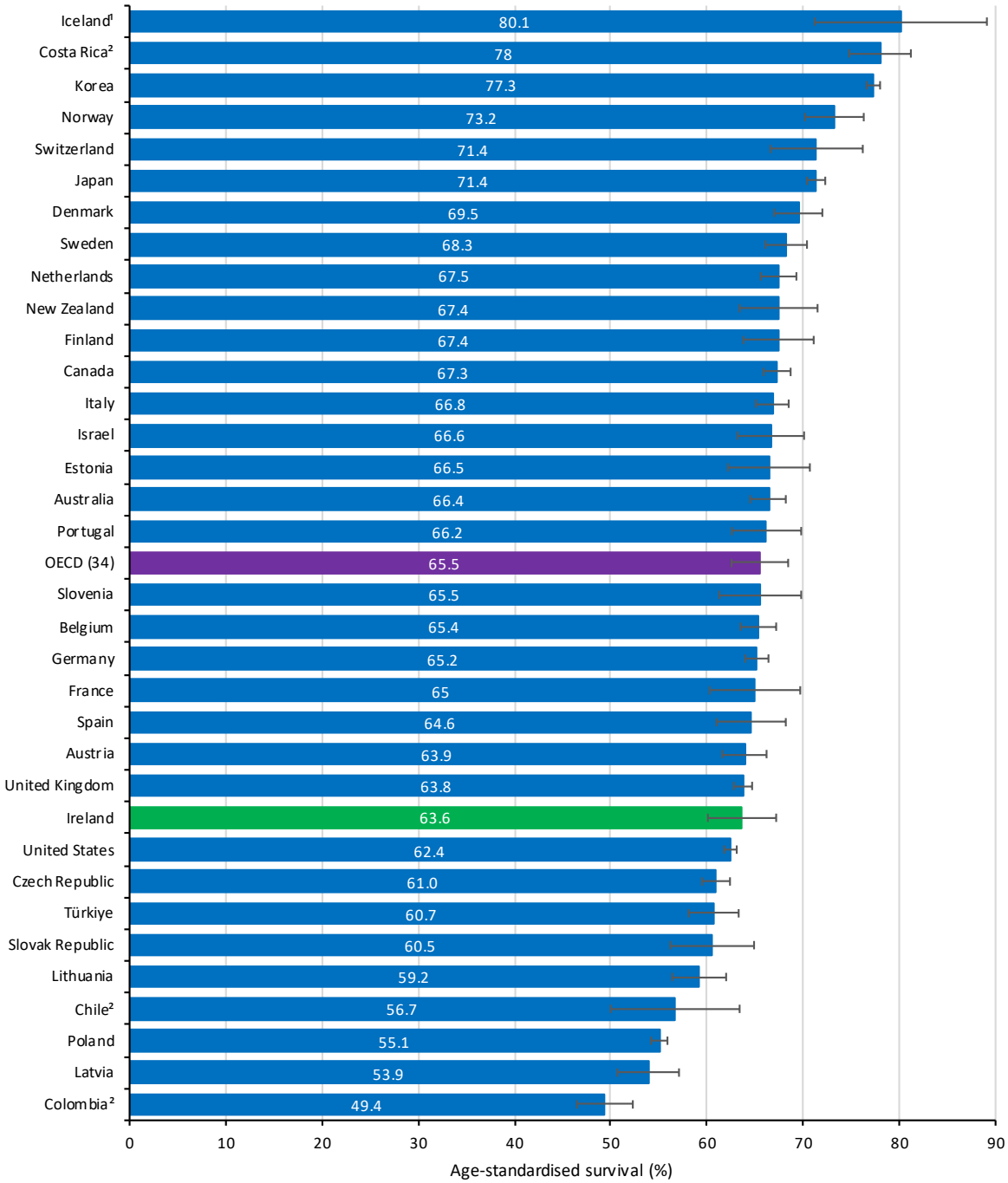
(i) Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata.

(ii) Cancer registration is a dynamic process and information is continually updated on the NCRI database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.

Exclusions:

Patients aged <15 or >99 at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour.

Figure 3.4: Cumulative 5-year age-standardised net survival (females 15 years and older), cervical cancer, 2010-2014, OECD countries



[1] Estimated value; [2] Different methodology.

Source: OECD Health Statistics.

Notes: Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves. 95% confidence intervals represented by ⊢⊣.

Colorectal cancer survival rates

Definition

Age-standardised estimates of cumulative 5-year net survival in Ireland and OECD countries for colorectal cancer patients diagnosed in five time period cohorts from 1994 to 2018.

Description

There are approximately 2,500 cases of colorectal cancer diagnosed each year in Ireland and it is the second (after breast cancer) and third (after prostate and lung cancer) most common cancer diagnosed in women and men, respectively. Colorectal cancer is the second most common cause of cancer death and causes approximately 1,000 deaths in Ireland annually [13].

Advances in diagnosis and treatment of colorectal cancer have increased survival over the last decade. There is compelling evidence in support of the clinical benefit of improved surgical techniques, radiation therapy and combined chemotherapy, with most countries in the OECD showing improvement in survival rates over recent periods.

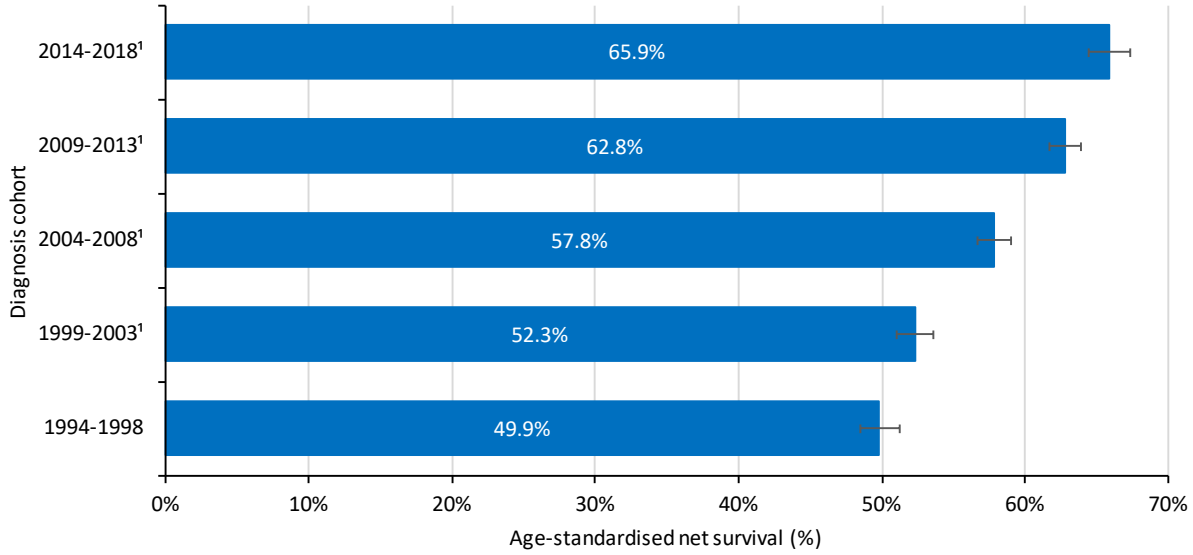
Rationale for the inclusion of indicator

Colorectal cancer is the second most common cause of cancer death and causes approximately 1,000 deaths in Ireland annually [13].

Commentary

- Five-year age-standardised net survival from colorectal cancer was 65.9% nationally for patients diagnosed in the 2014 to 2018 cohort. The net survival from colorectal cancer has improved incrementally over the last five five-year periods up from 49.9% for the 1994-1995 cohort. There was a statistically significant difference in the net survival rate for each cohort compared with the previous cohort.
- The 5-year age-standardised net survival rate for colon cancer in Ireland (60.5%) for the period 2010- 2014 was below the OECD average (61.2%), although this difference was not statistically significant.
- For rectal cancer, the 5-year age-standardised net survival rate in Ireland (61.7%) was slightly above the OECD average (59.8%).
- It is important to note that there may be variations between countries due to difference in their coding practices, in the definitions and disease classification systems used. This needs to be taken into account when comparing the countries.

Figure 3.5: Cumulative 5-year age-standardised net survival in Ireland for colorectal cancer patients diagnosed in five time period cohorts from 1994 to 2018



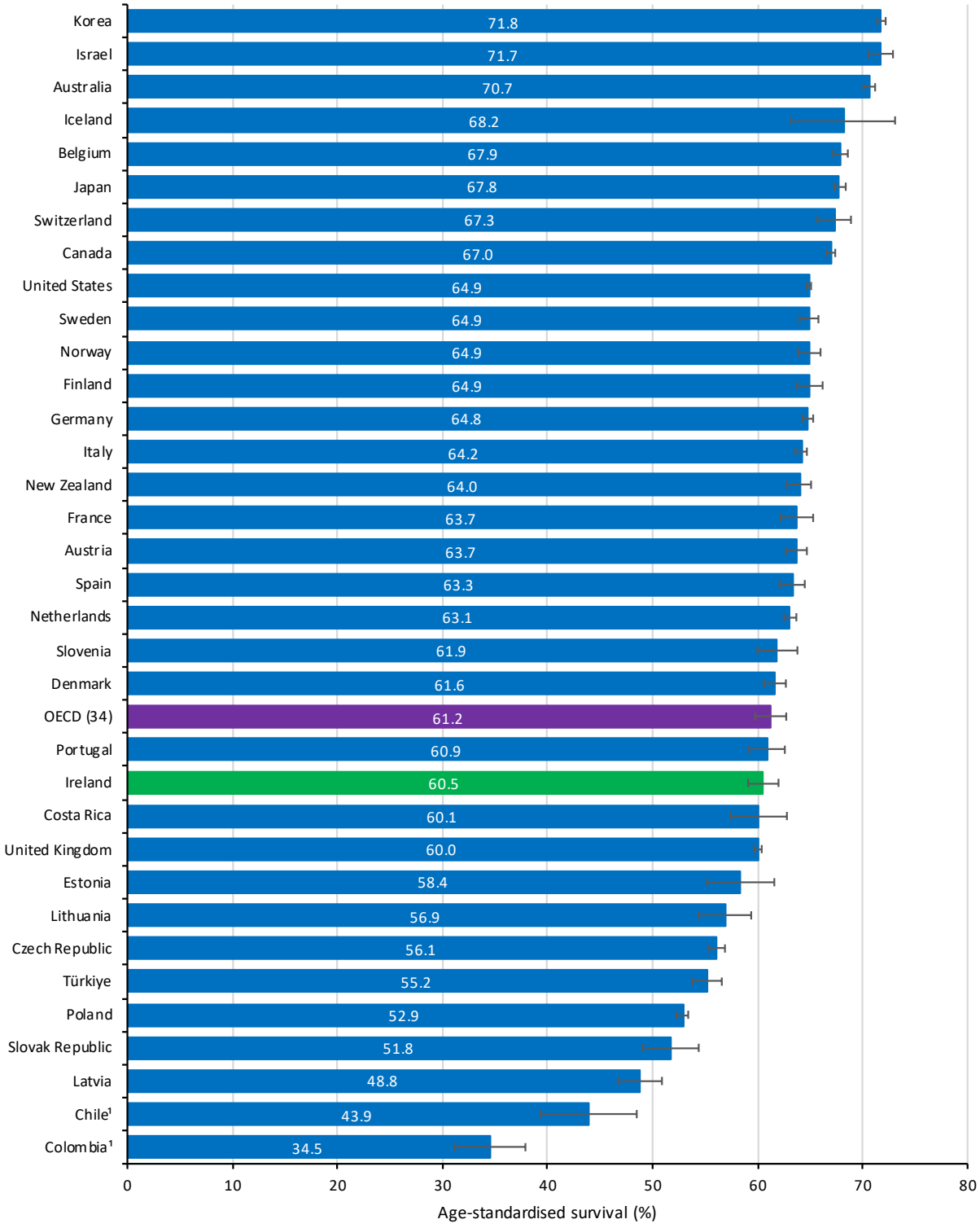
[1] There was a statistically significant difference in the net survival rate for this cohort compared with the previous cohort.

Source: National Cancer Registry Ireland, August 2022

Notes:
(i) Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata.
(ii) Cancer registration is a dynamic process and information is continually updated on the NCRI database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.

Exclusions:
(i) Patients aged <15 or >99 at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour.
(ii) Figures here exclude carcinoids of the appendix, because changes in behaviour-coding guidelines for these have changed over time. (Updated comparisons in future may be include carcinoids of appendix but will require conversion and re-analysis based on current rules).

Figure 3.6: Cumulative 5-year age-standardised net survival (15 years and older), colon cancer, 2010-2014, OECD countries

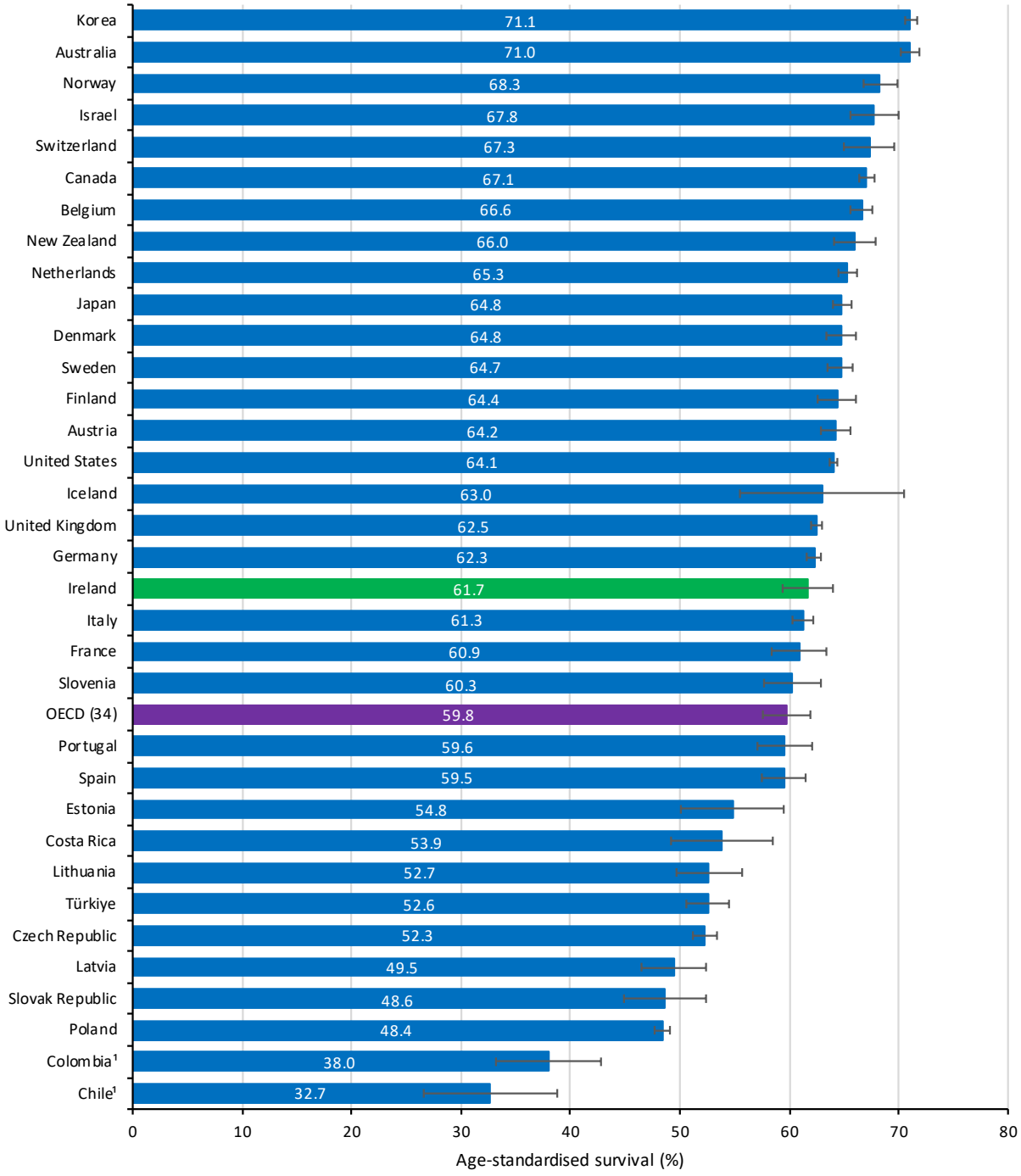


[1] Different methodology.

Source: OECD Health Statistics.

Notes: Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves. 95% confidence intervals represented by ⊢⊣.

Figure 3.7: Cumulative 5-year age-standardised net survival (15 years and older), rectal cancer, 2010-2014, OECD countries



[1] Different methodology.

Source: OECD Health Statistics.

Notes: Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves. 95% confidence intervals represented by ⊢.

Lung cancer survival rates

Definition
Age standardised estimates of cumulative 5-year net survival in Ireland and countries contributing data to the CONCORD-3 study for lung cancer patients diagnosed in five time period cohorts from 1994 to 2018.

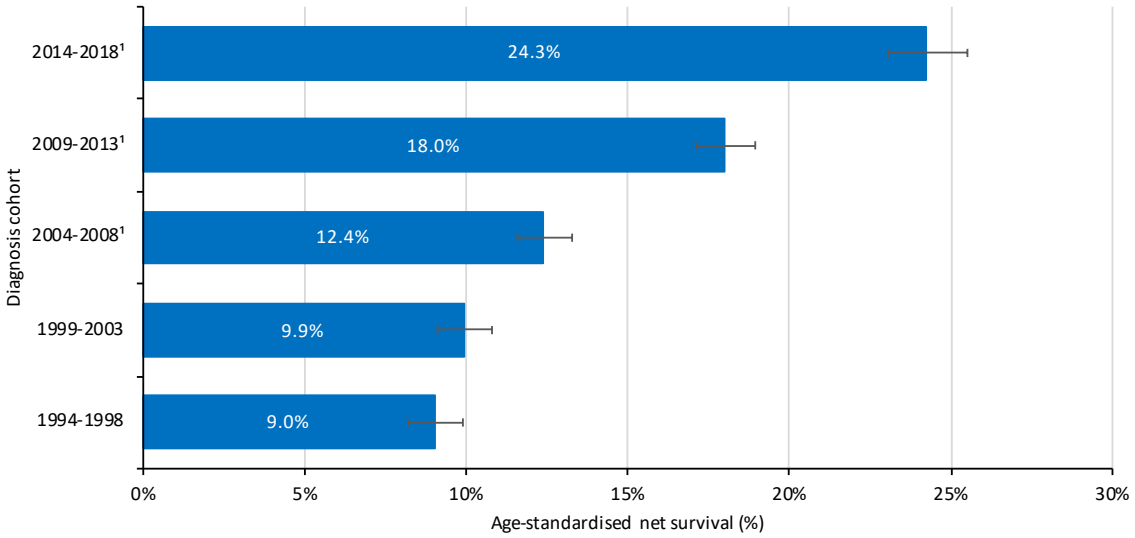
Description
Lung cancer is the leading cause of cancer death in both men and women in Ireland [15].

Lung cancer remains by far the most common cause of death from cancer among men (25% of all cancer deaths across the EU) and among women (17% of all cancer deaths across the EU) [16].

Rationale for the inclusion of indicator
Net survival rates for lung cancer are very poor in comparison with many other cancers, with an age- standardised 5-year survival of 15.3% in the period 2008-2012. [17].

Commentary
- The national 5-year age-standardised net lung cancer survival rate for those patients diagnosed between 2014 and 2018 was 24.3%. The net survival from lung cancer has improved incrementally over the last five 5-year periods up from 9.0% for the cohort diagnosed between 1994-1998. There was a statistically significant difference in the net survival rate for the 2014 to 2018 cohort in comparison to 2009 to 2013 cohort.
- The 5-year age-standardised net survival rate for lung cancer in Ireland (17.5%) between 2010 and 2014 was slightly higher than the OECD rate which was 17.1%.
- It is important to note that there may be variations between countries due to difference in their coding practices, in the definitions and disease classification systems used. This needs to be taken into account when comparing the countries.

Figure 3.8: Cumulative 5-year age-standardised net survival in Ireland for lung cancer patients diagnosed in five time period cohorts from 1994 to 2018



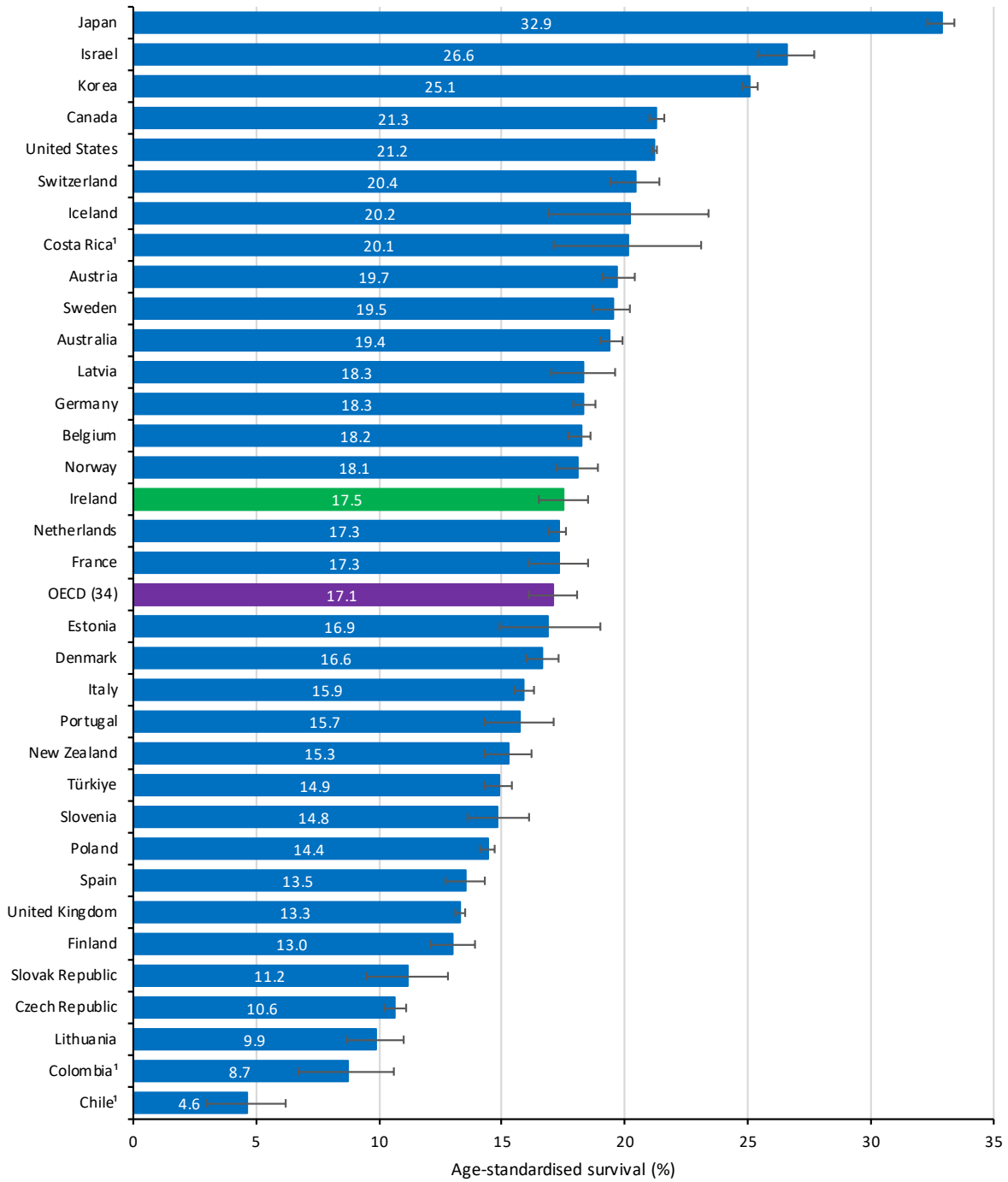
[1] There was a statistically significant difference in the net survival rate for this cohort compared with the previous cohort.

Source: National Cancer Registry Ireland, August 2022

Notes:
(i) Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata.
(ii) Cancer registration is a dynamic process and information is continually updated on the NCRI database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.

Exclusions:
Patients aged <15 or >99 at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour.

Figure 3.9: Cumulative 5-year age-standardised net survival (15 years and older), lung cancer, 2010-2014, OECD countries



[1] Different methodology.

Source: OECD Health Statistics.

Notes: Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves. 95% confidence intervals represented by ⊢.

Hospital location of breast cancer surgery in patients with breast cancer

Definition

The number of breast cancer surgical procedures undertaken in designated cancer centres each year, in patients whose principal diagnosis is breast cancer. The proportion of all breast cancer surgical procedures, in publicly-funded hospitals nationally, that is undertaken in designated cancer centres, in patients whose principal diagnosis is breast cancer.

Description

Most breast cancers are treated with a combination of treatments; surgery, radiotherapy, hormone therapy, chemotherapy and/or immunotherapy. The majority (85%) of patients will have some form of surgical intervention as part of their treatment [18].

International evidence advises that breast cancer patients experience better outcomes when treated by surgeons who perform high volumes of breast cancer surgery (a minimum of 50 per year) and when that treatment is received in high volume centres [19], [20], [21].

In 2006, breast cancer surgery was undertaken in 32 public hospitals in Ireland, and several hospitals recorded less than 50 procedures in the year.

In 2007, the National Cancer Control Programme (NCCP) was established to reorganise the way cancer care was delivered in Ireland. Eight hospitals were designated as cancer centres. An additional satellite for breast cancer services was provided in one location in Ireland. Surgical treatment of breast cancer has been centralised to these designated cancer centres.

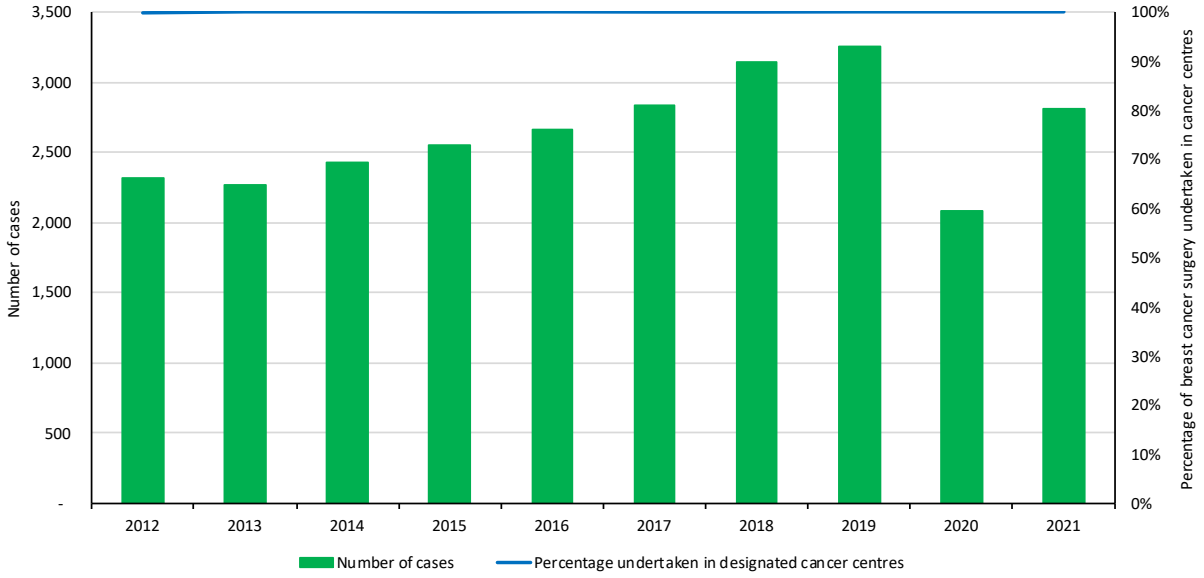
Rationale for the inclusion of indicator

Breast cancer is the most common malignant tumour diagnosed in women in Ireland, with approximately 3,500 cases diagnosed each year (2017-2019). This represents almost one third of all major cancers diagnosed in women.

Commentary

- The number of surgical procedures for breast cancer in the designated cancer centres increased each year from 2013 (2,270) to 2019 (3,256), however, the number of cases decreased to 2,082 in 2020. There was an increase to 2,812 cases of breast cancer surgery in the designated cancer centres in 2021.
- From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. As a result of this, the HSE entered into a Service Level Agreement (known as Safety Net) with private hospitals to allow some public patients (including elective surgeries) to be treated in private hospitals for the duration of the COVID-19 pandemic. [22]. Such activity was not recorded on HIPE and is not presented here for the year 2020, however, the Healthcare Pricing Office has received some limited information on discharges of public patients from private hospitals who were treated under the iterations of the 'Safety Net' agreements that were in place from 2021 onwards. It should be noted that this data is incomplete and has not undergone the rigorous quality checks that apply to HIPE data and is therefore not directly comparable with HIPE data and must be interpreted with caution. Based on this information approximately 230 breast cancer surgeries were carried out in private hospitals during 2021 under this agreement.
- Since 2012 almost all breast cancer surgical activity has been centralised to the designated cancer centres. In 2021, 100% of breast cancer surgery was undertaken in designated cancer centres.

Figure 3.10: Number of breast cancer surgeries undertaken in designated centres in female patients whose principal diagnosis is breast cancer and proportion of total breast cancer surgery nationally undertaken in designated centres, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

Note:
(i) includes ductal carcinoma in situ
(ii) From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. Therefore, hospital activity in both 20201 and 2021 was extensively affected. As a result of this, the HSE entered into a Service Level Agreement (known as Safety Net) with private hospitals to allow some public patients (including elective surgeries) to be treated in private hospitals for the duration of the COVID-19 pandemic. These factors should be taken into consideration when reviewing data for 2020 and 2021.

Hospital location of colon cancer surgery in patients with colon cancer

Definition

The number of colon cancer surgical procedures undertaken in each hospital in patients whose principal diagnosis is colon cancer. The proportion of all colon cancer surgical procedures in publicly-funded hospitals nationally, that is undertaken in designated cancer centres, in patients whose principal diagnosis is colon cancer.

Description

In 2006, colon cancer surgical procedures in patients with colon cancer were undertaken in 35 hospitals in Ireland. In 2007, the National Cancer Control Programme (NCCP) was established to reorganise the way that cancer care was delivered in Ireland. Cancer services were centralised to eight designated cancer centres.

The data presented in this report includes both elective (planned) and emergency procedures. All cancers diagnosed under the national screening programme, BowelScreen, are treated electively in the designated cancer centres.

It was envisaged that curative surgical treatment of primary colon cancer was to be centralised to the eight designated centres. A significant proportion of colon cancer surgery still occurs outside designated cancer centres.

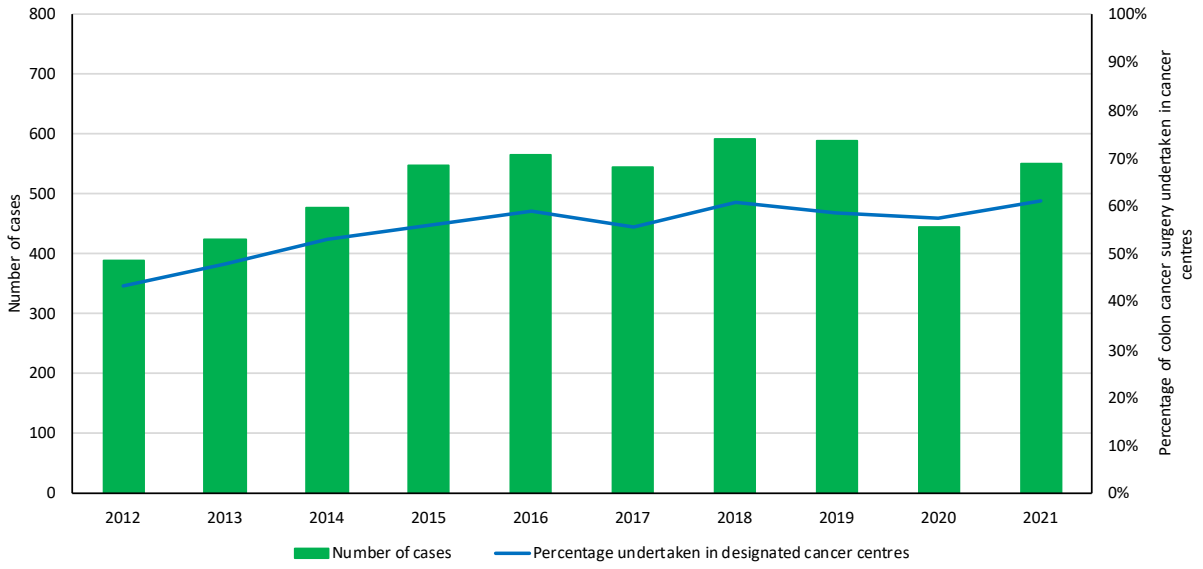
Rationale for the inclusion of indicator

There are approximately 2,700 cases of colorectal cancer diagnosed each year in Ireland (2017-2019). International evidence suggests that patients with colorectal cancer experience better overall 5-year survival when treated in a high volume hospital by a high-volume specialist surgeon [23].

Commentary

- The number of cases of colon cancer surgery in the designated cancer centres increased each year from 2017 (545) to 2019 (589), however, the number of cases decreased to 444 in 2020. There was an increase to 551 cases of colon cancer surgery in the designated cancer centres in 2021.
- From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 discharges. As a result of this, the HSE entered into a Service Level Agreement (known as Safety Net) with private hospitals to allow some public patients (including elective surgeries) to be treated in private hospitals for the duration of the COVID-19 pandemic. [22]. Such activity was not recorded on HIPE and is not presented here for the year 2020, however, the Healthcare Pricing Office has received some limited information on discharges of public patients from private hospitals who were treated under the iterations of the 'Safety Net' agreements that were in place from 2021 onwards. It should be noted that this data is incomplete and has not undergone the rigorous quality checks that apply to HIPE data and is therefore not directly comparable with HIPE data and must be interpreted with caution. Based on this information approximately 15 colon cancer surgeries were carried out in private hospitals during 2021 under this agreement.
- The proportion of colon cancer surgical procedures undertaken in the designated cancer centres dropped slightly in 2020 (57.4%) in comparison to 2019 (58.5%) but increased to 61% in 2021.

Figure 3.11: Number of colon cancer surgeries undertaken in designated centres in patients whose principal diagnosis is colon cancer and proportion of total colon cancer surgery nationally undertaken in designated centres, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

Notes

(i) Includes colonic carcinoma in situ. In 2015 there was an update to ICD-10 AM/ACHI from the 6th to the 8th edition, which resulted in additional procedure codes related to colon cancer surgical treatment.

(ii) Data differs from that published in previous NHQRS reports. Letterkenny University Hospital acts as a satellite designated cancer centre of Galway University Hospital for breast cancer services only, and is therefore not included here as a designated centre for colon cancer.

(iii) From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. Therefore, hospital activity in both 20201 and 2021 was extensively affected. As a result of this, the HSE entered into a Service Level Agreement (known as Safety Net) with private hospitals to allow some public patients (including elective surgeries) to be treated in private hospitals for the duration of the COVID-19 pandemic. These factors should be taken into consideration when reviewing data for 2020 and 2021.

Hospital location of rectal cancer surgery in patients with rectal cancer

Definition

The number of rectal cancer surgical procedures undertaken in each hospital in patients whose principal diagnosis is cancer of the rectum. The proportion of all rectal cancer surgical procedures, in publicly-funded hospitals nationally, that is undertaken in designated cancer centres, in patients whose principal diagnosis is rectal cancer.

Description

In 2006, rectal cancer surgical procedures in patients with rectal cancer were undertaken in 33 hospitals in Ireland. Eight hospitals were designated as cancer centres.

The data presented in this report includes both elective (planned) and emergency procedures, subject to data availability. All cancers diagnosed under the national screening programme, BowelScreen, are treated electively in the designated cancer centres.

The centralisation of surgical services for rectal cancer is being reviewed in light of current evidence and new treatment modalities. Further concentration of these services is envisaged.

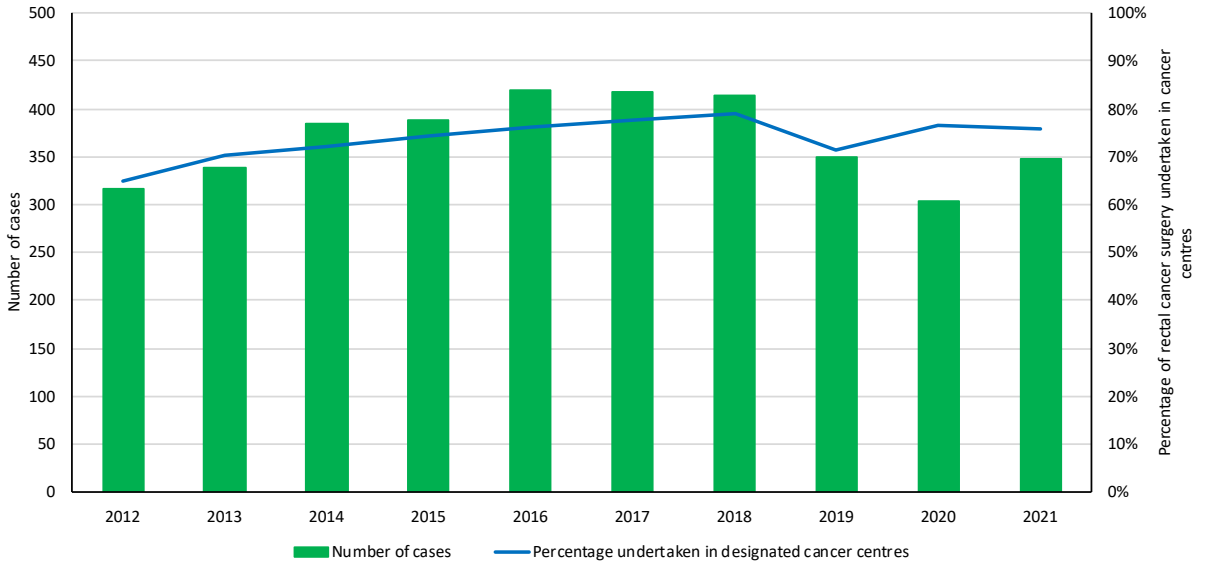
Rationale for the inclusion of indicator

International evidence advises that patients with cancer of the rectum experience better overall 5-year survival when treated in a high-volume hospital by a high-volume surgeon [23].

Commentary

- The number of rectal cancer surgeries in designated cancer centres decreased between 2017 (417) and 2019 (349 cases). There was a further decrease in the number of rectal cancer surgeries in designated cancer centres in 2020 (303). This increased to 348 in 2021.
- From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 discharges. As a result of this, the HSE entered into a Service Level Agreement (known as Safety Net) with private hospitals to allow some public patients (including elective surgeries) to be treated in private hospitals for the duration of the COVID-19 pandemic. [22]. Such activity was not recorded on HIPE and is not presented here for the year 2020, however, the Healthcare Pricing Office has received some limited information on discharges of public patients from private hospitals who were treated under the iterations of the 'Safety Net' agreements that were in place from 2021 onwards. It should be noted that this data is incomplete and has not undergone the rigorous quality checks that apply to HIPE data and is therefore not directly comparable with HIPE data and must be interpreted with caution. Based on this information approximately 20 rectal cancer surgeries were carried out in private hospitals during 2021 under this agreement.
- The proportion of rectal cancer surgery undertaken in the designated cancer centres increased from 71.4% of all activity undertaken in 2019 to 75.7% in 2021.

Figure 3.12: Number of rectal cancer surgeries undertaken in designated centres in patients whose principal diagnosis is rectal cancer and proportion of total rectal cancer surgery nationally undertaken in designated centres, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

Notes

(i) Includes rectal carcinoma in situ. In 2015 there was an update to ICD-10 AM/ACHI from the 6th to the 8th edition, which resulted in additional procedure codes related to rectal cancer surgical treatment.

(ii) Data differs from that published in previous NHQRS reports. Letterkenny University Hospital acts as a satellite designated cancer centre of Galway University Hospital for breast cancer services only, and is therefore not included here as a designated centre for rectal cancer.

(iii) From the first quarter of 2020, COVID-19 had a substantial impact on the ability of hospitals to deliver their normal level of services due to the reconfiguration and re-designation of wards to accommodate COVID-19 patients. Therefore, hospital activity in both 20201 and 2021 was extensively affected. As a result of this, the HSE entered into a Service Level Agreement (known as Safety Net) with private hospitals to allow some public patients (including elective surgeries) to be treated in private hospitals for the duration of the COVID-19 pandemic. These factors should be taken into consideration when reviewing data for 2020 and 2021.

In-hospital mortality within 30 days for acute myocardial infarction (AMI)/ heart attack

Definition

The number of patients aged 45 and over who die in hospital within 30 days of being admitted with a principal diagnosis of an AMI, as a proportion of the total number of patients aged 45 and over admitted to that hospital with a principal diagnosis of an AMI.

Description

AMIs are life-threatening emergencies that happen when the coronary arteries, the blood vessels supplying blood to the heart muscle, are suddenly blocked. Lack of blood supply damages the heart muscle, weakening its function or stopping it altogether. There are two broad categories of AMI, ST elevation AMI and non-ST elevation AMI. STEMI affects about 1500 persons per year in Ireland: non- STEMI about 4500 persons per year in Ireland. Natural history, prognosis and treatment varies depending on AMI type. With STEMI, index mortality is higher without timely reperfusion within 120 minutes of first medical contact, whereas with non- STEMI long term recurrent events and mortality is higher. However, evidence links the processes of care for AMI, such as primary PCI or thrombolysis and early treatment with aspirin and beta-blockers in STEMI, to survival improvements. The use of the 30-day mortality rate after AMI is a recognised outcome measure of acute care quality and is one of the OECD Health Care Quality Indicators. Reporting overall 30-day mortality rate after AMI includes both STEMI and non STEMI 30-day mortality.

The current National Office of Clinical Audit Irish Heart Attack Audit reports metrics regarding the quality of care, and timeliness of reperfusion therapy, and mortality in-hospital and at 30-days for patients with STEMI only. No national audit for outcomes of non-STEMI care currently exists. Therefore, the reported mortality in the Irish National Heart Attack Audit differs from the broader definition used for 30-day AMI mortality in the NHQRS. They are not comparable. The Irish Heart Attack Audit does plan to expand to audit non-STEMI care in time and will, from 2023, perform risk adjustment analysis of mortality with STEMI to adjust for baseline patient differences to allow more definitive hospital-by-hospital performance analysis.

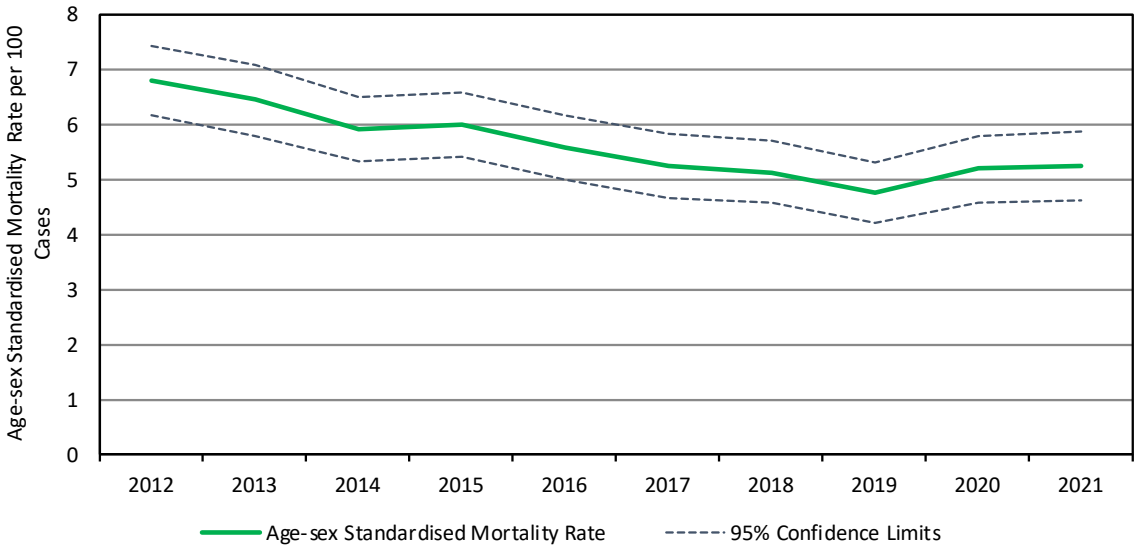
Rationale for the inclusion of indicator

The number of adults with clinically diagnosed coronary heart disease is expected to rise to more than 103,000 by 2020 [24]. One of the potential consequences for those with heart disease is that they may experience an AMI which is one of the leading causes of death in Ireland.

Commentary

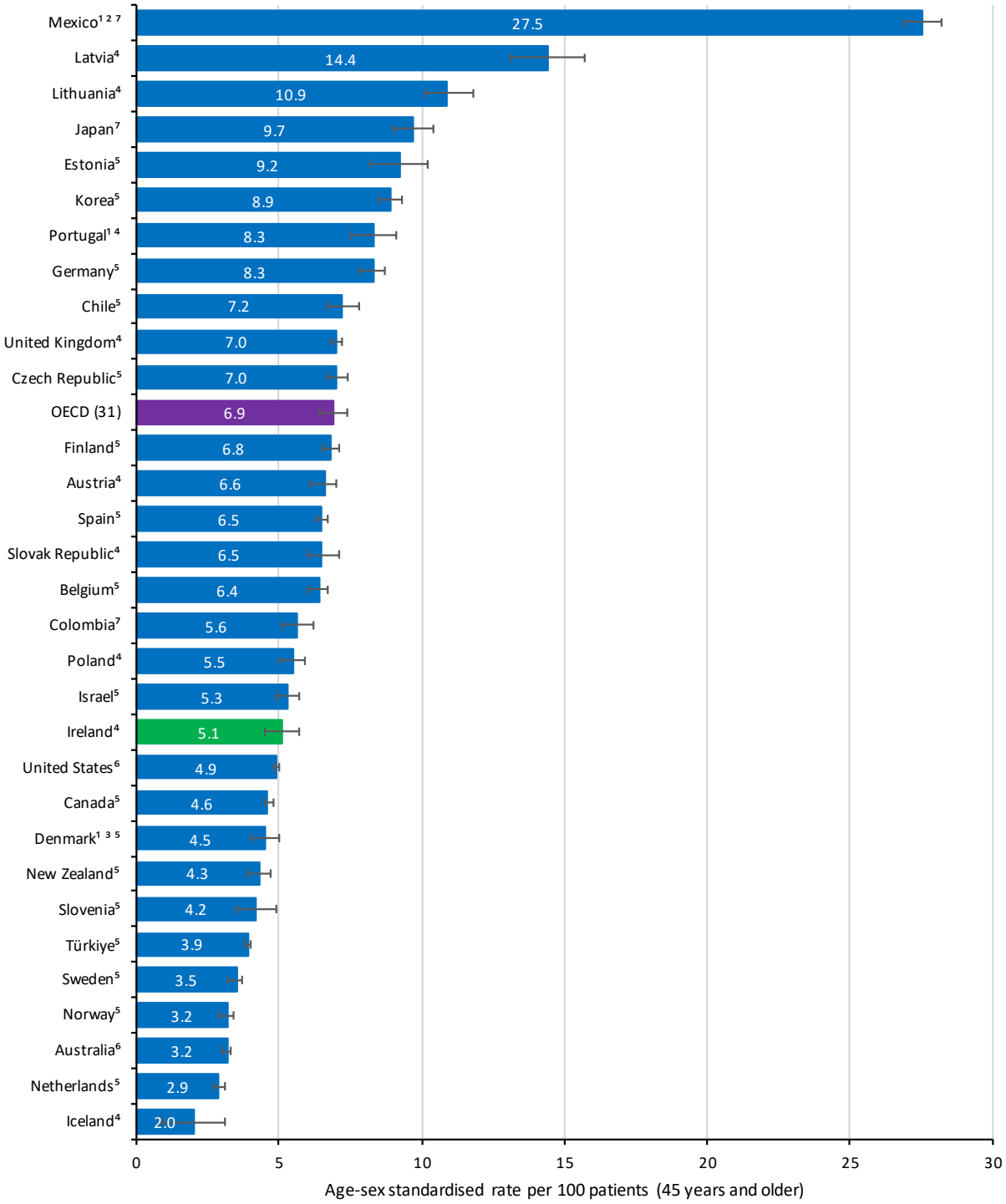
- The national trend in the age-sex standardised mortality rates (also known as age-sex standardised death rates or ASDR) for AMI decreased from 5.14 in 2018 to 4.76 in 2019. The rate increased to 5.2 in 2020 and slightly again in 2021 to 5.25. Over the 10-year period from 2012 to 2021 there was a 23% decrease in this rate.
- In 2020, (the latest year for which OECD data is available) the average age-sex standardised in-hospital mortality rate in the 30 days following admission to hospital for AMI in Ireland was lower than the OECD average rate (i.e., 5.1 deaths per 100 cases admitted in Ireland, compared to the OECD average of 6.9 deaths per 100 cases admitted), although this difference was not statistically significant. Only nine countries, including Ireland, have provided data for 2020 which is likely to have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years. Charts excludes any OECD country where latest available data is for 2015 or earlier.
- Reviewing the three-year period from 2019-2021, it was found that in most hospitals the age-sex standardised mortality rates were within or lower than the expected range.
- It is important to note however, that the age-sex standardised rates presented here are high level indicators only. There can be many reasons why the age-sex standardised mortality rates for a hospital would be higher or lower than the national average, including
  a) differences in the types of patients attending different hospitals (for example some hospitals may have a higher or lower proportion of patients with other medical conditions attending than others and this may influence outcomes),
  b) Baseline differences in infarct location and size, co-morbidities, rates of cardiogenic shock, rates of out-of-hospital cardiac arrest that are not adjusted for in this analysis
  c) Burden of complex cardiac patient care falls on a limited number of 24-7 primary PCI centres, in particular St. James' and the Mater Misericordiae University Hospital
  d) inconsistencies in the quality of the data gathered in different hospitals,
  e) differences in access to medical care prior to arrival at the hospital,
  f) transfer patterns of patients between different hospitals,
- Therefore, it cannot be concluded that a high mortality rate is indicative of poorer quality care. Rather it provides an indication that a further evaluation should be carried out to determine the reasons for the identified variation.

Figure 3.13: Age-sex standardised in-hospital mortality rates within 30 days of admission for AMI, 2012-2021 (OECD age-sex standardisation, aged 45+ only)



Source: Hospital In-Patient Enquiry (HIPE)

Figure 3.14: Age-sex standardised in-hospital mortality rates within 30 days of admission for AMI (45 years and older) for selected OECD countries, 2020 (or nearest year)

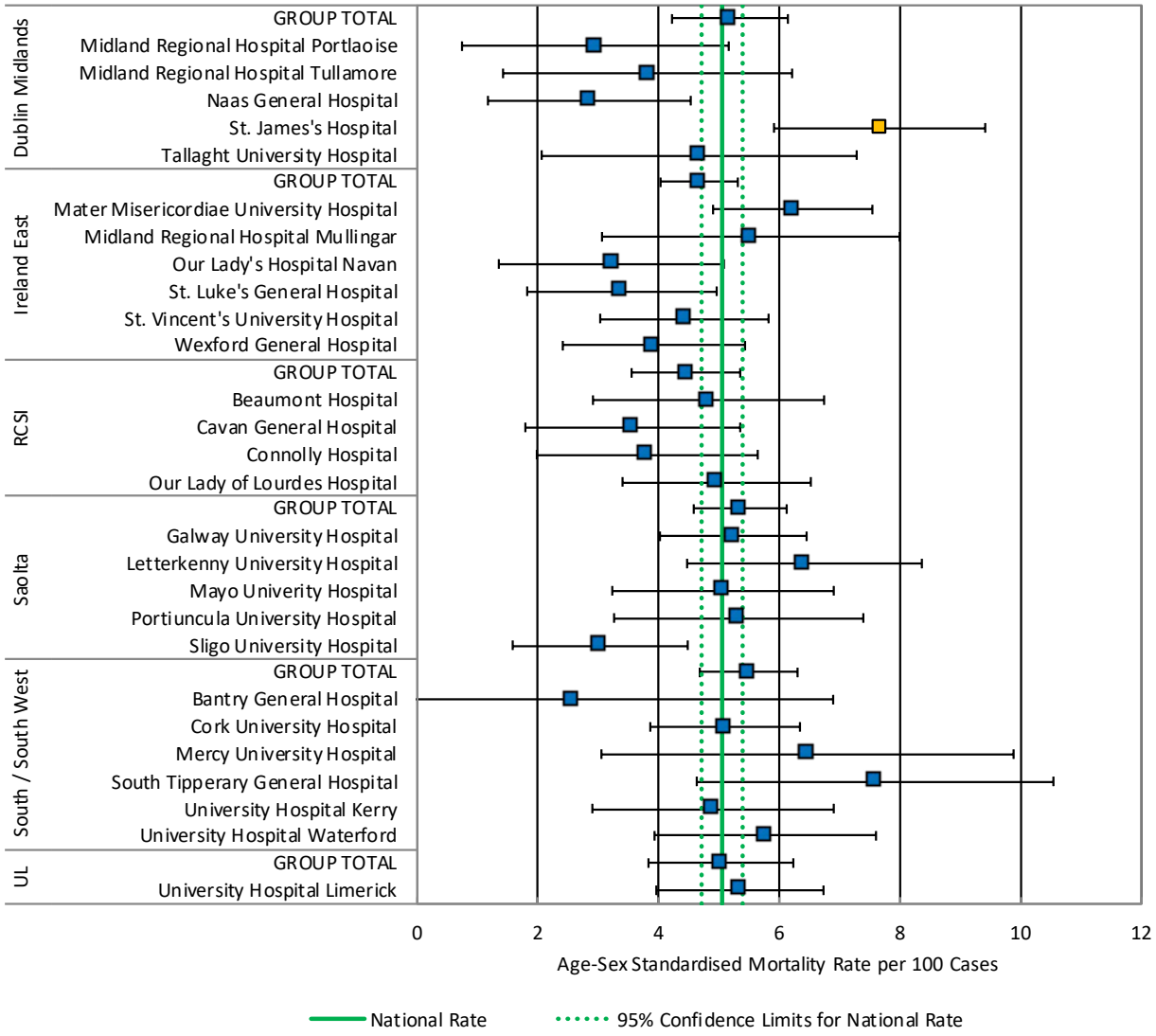


[1] Estimated value; [2] Different methodology; [3] Break in series [4] 2020; [5] 2019; [6] 2018; [7] 2017.

Source: OECD Health Statistics

Notes:
(i) Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves. 95% confidence intervals represented by ⊦.
(ii) The above data is 'Unlinked' data (or 'admission-based'). It refers to hospital data that comes from a single hospital admission. These data are not linked to other hospital admissions or death outside the hospital using a unique patient identifier. As Ireland can only produce 'Unlinked' data, this indicator has been selected for international comparison.
(iii) Nine countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.
(iv) OECD (31) average based on latest available year's data for countries which have reported for 2016 or later.

Figure 3.15: Age-sex standardised in-hospital mortality rates within 30 days of admission for AMI by hospital group and hospital, 2019-2021 (OECD age-sex standardisation, aged 45+ only)



Source: Hospital In-Patient Enquiry (HIPE)

Notes:

(i) Hospitals with small numbers of cases tend to have unstable rates and wider confidence intervals. For this report rates are not displayed for hospitals with fewer than 100 cases, although the data for these hospitals have been included in the calculation of the national and group total rates. However, some hospitals with more than 100 cases may still have unstable rates and caution should be exercised in interpreting rates with wide confidence intervals. The data presented above are age-sex standardised mortality rates per 100 cases. 95% confidence intervals for hospitals and hospital groups are shown by . Where the 95% confidence interval for a hospital or hospital group overlaps the 95% confidence interval of the national rate (i.e., the dashed green lines), it can be concluded that the rate is not statistically significantly different from the national rate and so is within the expected range. Where the 95% confidence interval for a hospital or hospital group does not overlap the confidence interval of the national rate, it implies that the mortality rate is statistically significantly different from the national rate and is therefore outside the expected range. Any hospital with a rate that is statistically significantly higher than the national rate is marked in orange.

(ii) The data used to calculate this indicator is based on finalised data as coded in the Hospital In-Patient Enquiry (HIPE). As part of a service evaluation process a hospital may carry out a review or audit after the HIPE data file has been closed. Such evaluation work by service providers is in line with the purpose of the NHQRS. This review may identify an inconsistency with the coding of data in HIPE (e.g., sequencing of principal diagnosis). Therefore, caution should be exercised when considering data for individual hospitals.

Table 3.1: Age-sex standardised in-hospital mortality rates within 30 days of admission for AMI by hospital group and hospital, 2019-2021 (OECD age-sex standardisation, aged 45+ only)

Hospital Group	Number of Cases	Age-sex Standardised Mortality Rate (ASDR) per 100 Cases	Lower 95% Confidence Limit for ASDR	Upper 95% Confidence Limit for ASDR
Dublin Midlands	**2,679**	**5.18**	**4.22**	**6.14**
Midland Regional Hospital Portlaoise	217	2.95	0.74	5.16
Midland Regional Hospital Tullamore	249	3.82	1.42	6.21
Naas General Hospital	493	2.85	1.17	4.53
St. James' Hospital	1,095	7.66	5.91	9.41
Tallaght University Hospital	625	4.67	2.06	7.28
Ireland East	**4,667**	**4.67**	**4.03**	**5.31**
Mater Misericordiae University Hospital	1,948	6.22	4.90	7.54
Midland Regional Hospital Mullingar	320	5.53	3.06	7.99
Our Lady's Hospital Navan	344	3.22	1.35	5.08
St. Columcille's Loughlinstown	31	-	-	-
St. Luke's General Hospital	552	3.39	1.82	4.96
St. Michael's Hospital	35	-	-	-
St. Vincent's University Hospital	821	4.43	3.03	5.82
Wexford General Hospital	616	3.92	2.41	5.43
RCSI	**2,154**	**4.45**	**3.55**	**5.35**
Beaumont Hospital	578	4.83	2.91	6.74
Cavan General Hospital	385	3.57	1.79	5.35
Connolly Hospital	521	3.81	1.98	5.64
Our Lady of Lourdes Hospital	670	4.96	3.40	6.52
Saolta	**3,423**	**5.35**	**4.58**	**6.12**
Galway University Hospital	1,614	5.24	4.02	6.45
Letterkenny University Hospital	629	6.41	4.47	8.36
Mayo University Hospital	506	5.07	3.23	6.90
Portiuncula University Hospital	185	5.32	3.26	7.39
Roscommon University Hospital	18	-	-	-
Sligo University Hospital	471	3.03	1.58	4.48
South / South West	**3,325**	**5.49**	**4.68**	**6.30**
Bantry General Hospital	125	2.57	0.31	4.84
Cork University Hospital	1,654	5.10	3.86	6.34
Mallow General Hospital	61	-	-	-
Mercy University Hospital	185	6.46	3.05	9.88
South Tipperary General Hospital	281	7.59	4.63	10.54
University Hospital Kerry	403	4.90	2.90	6.90
University Hospital Waterford	616	5.77	3.93	7.60
UL Hospitals	**1,268**	**5.03**	**3.83**	**6.23**
St. John's Hospital	33	-	-	-
UL Hospitals Ennis	53	-	-	-
UL Hospitals Nenagh	42	-	-	-
University Hospital Limerick	1,140	5.35	3.96	6.73
Total for All Hospitals	**17,516**	**5.05**	**4.71**	**5.39**

Source: Hospital In-Patient Enquiry (HIPE)

Note: Hospitals with small numbers of cases tend to have unstable rates and wider confidence intervals. For this report rates are not displayed for hospitals with fewer than 100 cases, although the data for these hospitals have been included in the calculation of the national and group total rates. However, some hospitals with more than 100 cases may still have unstable rates and caution should be exercised in interpreting rates with wide confidence intervals.

Stroke admissions to hospitals with stroke units

Definition

The proportion of patients nationally, whose principal diagnosis is stroke, who are admitted to a hospital with a Stroke Unit[2] on diagnosis.

Description

A stroke is the sudden death of brain cells in a localised area due to inadequate blood flow caused by a haemorrhage (bleeding) or ischaemia (blood clot).

To improve morbidity and mortality outcomes, international evidence recommends that all stroke patients, on diagnosis, should be admitted to a properly equipped stroke unit, staffed by a multidisciplinary team, which should include, at a minimum, appropriately trained medical and nursing staff, physiotherapists, occupational therapists and speech and language therapists [25]. The Irish Council for Stroke Guidelines state that all hospitals providing care for acute stroke patients must make available immediate access to a specialist, acute stroke unit or comprehensive stroke unit (providing acute care and rehabilitation) with the capacity to monitor and regulate basic physiological functions [26].

In 2010 the National Clinical Programme for Stroke was developed with the key aims of:

- National rapid access to best-quality stroke services including acute stroke unit care and fast door-to-decision times for thrombolysis and thrombectomy where appropriate.
- Prevent 1 stroke every day.
- Avoid death and dependence in 1 patient every day.

The Irish National Audit of Stroke (INAS) now sits within the National Cardiovascular Disease Audit Programme in the National Office of Clinical Audit (NOCA). In time, this may give additional information on the quality of stroke care provided. The INAS National Report 2019 was published in December 2020. The INAS National Report 2020 was published in 2022.

Rationale for the inclusion of indicator

Stroke is a leading cause of morbidity and mortality in Ireland; over 7,000 people in Ireland are hospitalised following stroke each year [27] and approximately 2,000 people die as a result of stroke each year.

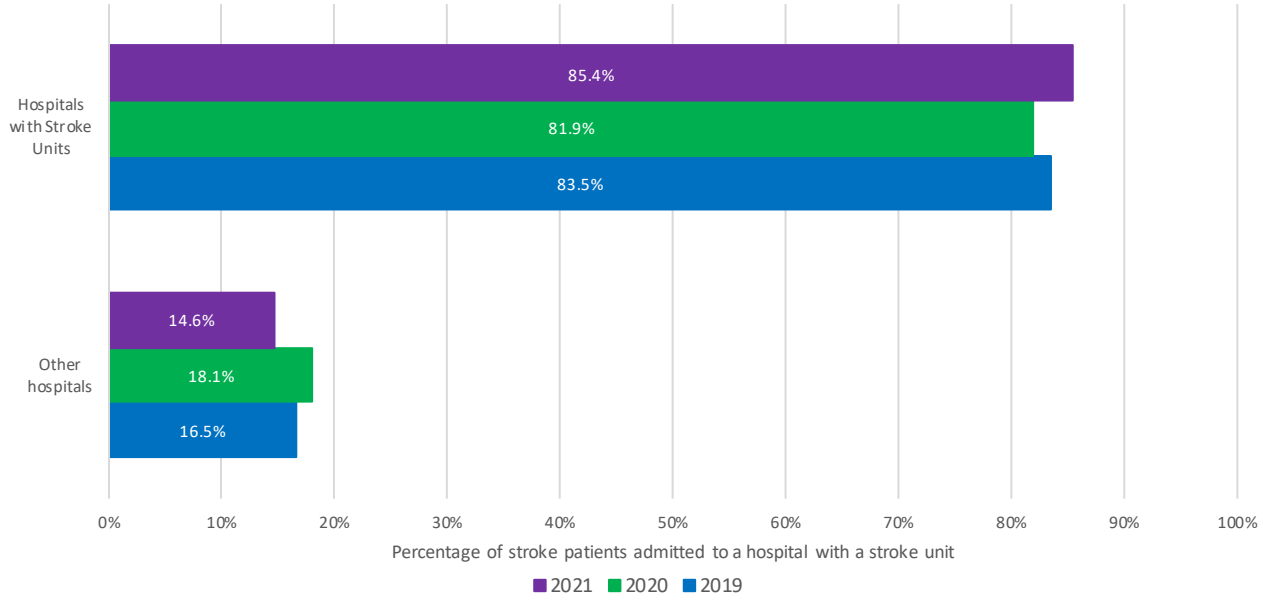
International evidence consistently shows that care in stroke units improves outcomes and reduces mortality for all groups and subtypes of stroke. A stroke unit ensures that core stroke services in terms of enhanced monitoring, swallow screening for dysphagia, and nutritional assessment are all delivered through the context of organised care and stroke units. The acute stroke unit bed requirement has been mapped for individual sites by the national stroke programme as part of its new national stroke strategy.

Commentary

- The proportion of patients whose principal diagnosis is stroke who were admitted to a hospital with a stroke unit was 83.5% in 2019, this decreased slightly to 81.9% in 2020 but increased to 85.4% in 2021.

[2] The HSE has a KPI for stroke unit care of 90% admission of acute stroke patients to stroke units, however, this target is not being met [37]. A lack of acute stroke unit beds for case numbers presenting has been reported in hospital sites. The indicator included in the NHQRS differs from the KPI which refers to patients admitted to a stroke unit. Due to data limitations, the NHQRS indicator is stroke patients admitted to a hospital with a stroke unit, it does not specify if these patients were actually admitted to the stroke unit within that hospital.

Figure 3.16: The proportion of patients whose principal diagnosis is stroke who were admitted to a hospital with a stroke unit, 2019, 2020 and 2021



Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Only data from hospitals which are part of Hospital Groups are included. This differs from previous NHQRS reports.
(ii) Letterkenny University Hospital opened a Stroke Unit in March 2021. It is included in 'Hospitals with Stroke Units' for 2021, but in 'Other Hospitals' for previous years.
(iii) In 2020 Ireland updated to the 10th edition of the ICD10-AM classification system. One change in the new edition is that rehabilitation can no longer be coded as a principal diagnosis. This means that some admissions to hospitals (as transfers) for rehabilitation following a stroke, which would previously have been coded with a principal diagnosis of rehabilitation, would be coded with a principal diagnosis of stroke from 2020 onwards. Caution is required in comparing data from 2020 onwards with previous years.

In-hospital mortality within 30 days for haemorrhagic stroke

Definition

The number of patients aged 45 years and over who die in hospital within 30 days of being admitted with a principal diagnosis of an haemorrhagic stroke, as a proportion of the total number of patients aged 45 years and over admitted to that hospital with a principal diagnosis of an haemorrhagic stroke.

Description

A stroke is the sudden death of brain cells in a localised area due to inadequate blood flow caused by a haemorrhage (bleeding) or ischaemia (blood clot). Haemorrhagic stroke occurs when a blood vessel in the brain leaks or ruptures.

To improve morbidity and mortality outcomes, international evidence recommends that all stroke patients, on diagnosis, should be admitted to a properly equipped stroke unit, staffed by a multidisciplinary team, which should include, at a minimum, appropriately trained medical and nursing staff, physiotherapists, occupational therapists and speech and language therapists [25].

In 2010 the National Clinical Programme for Stroke was developed with the key aims of:

- National rapid access to best-quality stroke services including acute stroke unit care and fast door-to-decision times for thrombolysis and thrombectomy where appropriate.
- Prevent 1 stroke every day.
- Avoid death and dependence in 1 patient every day.

The Irish National Audit of Stroke (INAS) now sits within the National Cardiovascular Disease Audit Programme in the National Office of Clinical Audit (NOCA). In time, this may give additional information on the quality of stroke care provided. The *INAS National Report 2019* was published in December 2020. The INAS National Report 2020 was published in 2022.

Rationale for the inclusion of indicator

Stroke is a leading cause of morbidity and mortality in Ireland; over 7,000 people in Ireland are hospitalised following stroke each year [27] and approximately 2,000 people die as a result of stroke each year.

Variations in stroke mortality rates reflect many factors including early recognition of symptoms, seeking medical care as quickly as possible and, potentially, differences in the care provided.

International evidence consistently shows that care in stroke units improves outcomes and reduces mortality for all groups and subtypes of stroke. Hospitals with the highest age-sex standardised in-hospital mortality rates for haemorrhagic stroke should examine the reasons for identified variation including examination of access to core stroke services and access to standard protocols and care pathways to facilitate timely identification and transfer of suitable patients to neurosurgical centres.

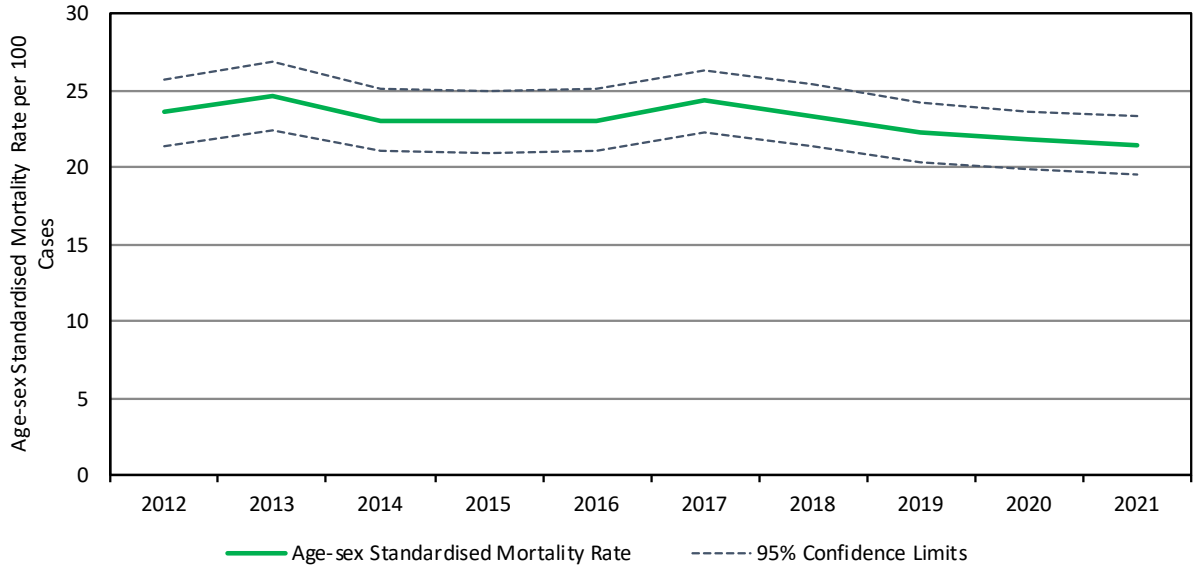
Commentary

- The age-sex standardised in-hospital mortality rate within 30 days of admission for haemorrhagic stroke has reduced by 8% over the ten-year period from 2012 to 2021, with 23.5 deaths per 100 cases admitted in 2012 compared to 21.4 deaths per 100 cases admitted in 2021. The rate has been relatively stable over the period from 2019-2021.
- In 2020, (the latest year for which OECD data is available), the average age-sex standardised in-hospital mortality rate within 30 days of admission with haemorrhagic stroke in Ireland was below the OECD average rate (i.e., 22 deaths per 100 cases for Ireland in that year compared to the OECD average of 23 deaths per 100 cases), though the difference was not statistically significant. Eight countries, including Ireland, have provided data for 2020 which would likely have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years
- During the three-year period from 2019-2021, the age-sex standardised in-hospital mortality rate for three hospitals (in orange) was statistically significantly higher than the national rate at the 95% confidence level. The rates for all other hospitals were within or lower than the expected range.
- It is important to note however, that the age-sex standardised rates presented here are high level indicators only. There can be many reasons why a hospital would have higher or lower rates than the national average, including:
  a) differences in the types of patients attending different hospitals (for example, some hospitals may have a higher or lower proportion of patients with other medical conditions attending than others, and this may influence outcomes),

b) inconsistencies in the quality of the data gathered in different hospitals,
c) differences in access to medical care prior to arrival at the hospital,
d) transfer patterns of patients between different hospitals,

- Therefore, it cannot be concluded that a high mortality rate is indicative of poor-quality care. Rather it provides an indication that a further evaluation should be carried out to determine the reasons for the identified variation in mortality rates.

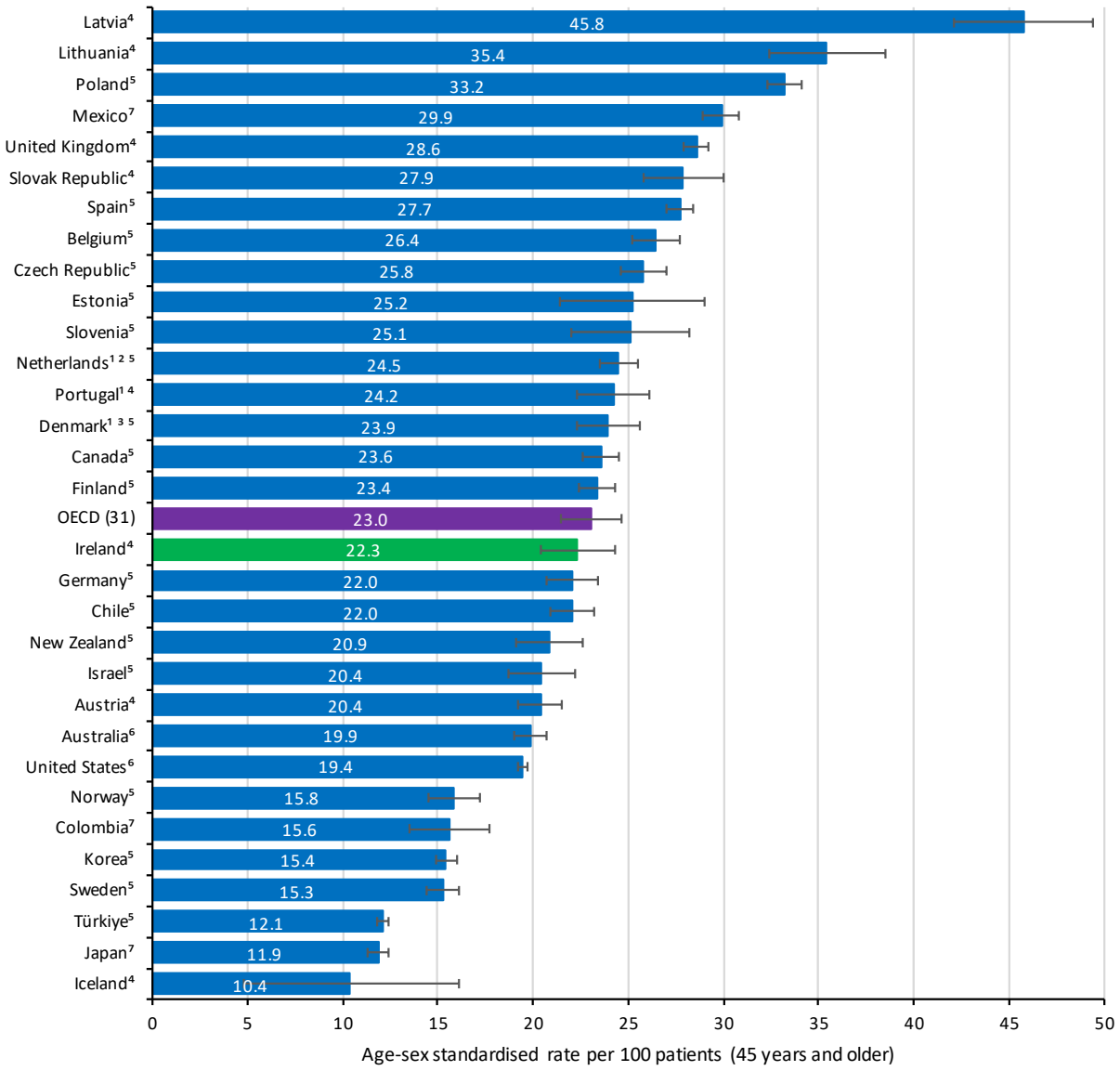
Figure 3.17: Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke, 2012-2021 (OECD age-sex standardisation, aged 45+ only)



Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Only data from hospitals which are part of Hospital Groups are included. This differs from previous NHQRS reports.
(ii) Letterkenny University Hospital opened a Stroke Unit in March 2021. It is included in 'Hospitals with Stroke Units' for 2021, but in 'Other Hospitals' for previous years.
(iii) In 2020 Ireland updated to the 10th edition of the ICD10-AM classification system. One change in the new edition is that rehabilitation can no longer be coded as a principal diagnosis. This means that some admissions to hospitals (as transfers) for rehabilitation following a stroke, which would previously have been coded with a principal diagnosis of rehabilitation, would be coded with a principal diagnosis of stroke from 2020 onwards. Caution is required in comparing data from 2020 onwards with previous years.

Figure 3.18: Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke (45 years or older) for selected OECD countries, 2020 (or nearest year)

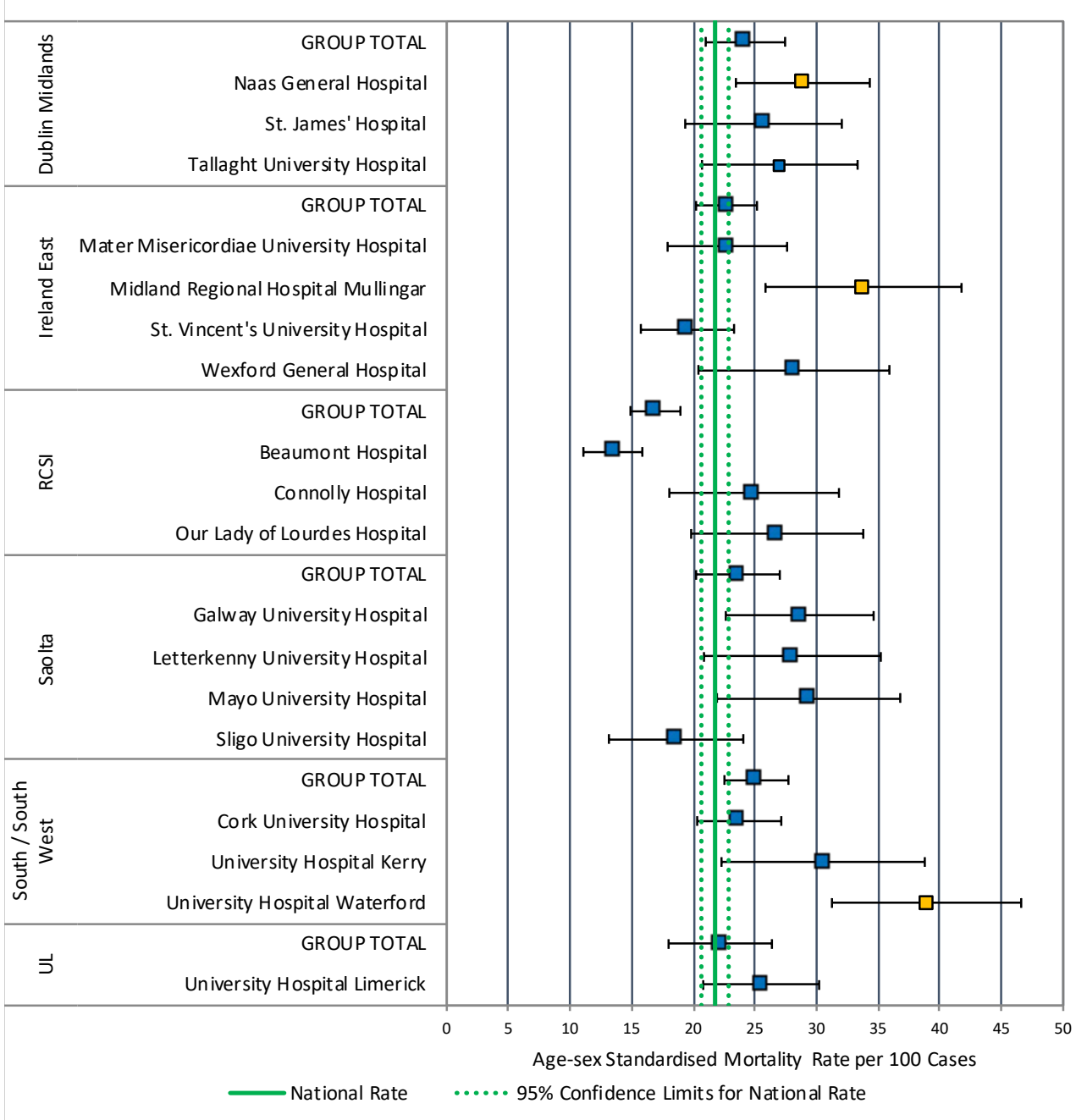


[1] Estimated value; [2] Different methodology; [3] Break in series, [4] 2020; [5] 2019; [6] 2018; [7] 2017

Source: OECD Health Statistics

Notes:
(i) Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves. 95% confidence intervals represented by ⊦.
(ii) The above data is 'Unlinked' data (or 'admission-based'). It refers to hospital data that comes from a single hospital admission. These data are not linked to other hospital admissions or death outside the hospital using a unique patient identifier. As Ireland can only produce 'Unlinked' data, this indicator has been selected for international comparison.
(iii) Eight countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.
(iv) OECD (31) average based on latest available year's data for countries which have reported for 2016 or later.

Figure 3.19: Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke by hospital group and hospital, 2019-2021



Source: Hospital In-Patient Enquiry (HIPE)

Notes:

(i) Only data from hospitals which are part of Hospital Groups are included.

(ii) Hospitals with small numbers of cases tend to have unstable rates and wider confidence intervals. For this report rates are not displayed for hospitals with fewer than 100 cases, although the data for these hospitals have been included in the calculation of the national and group total rates. However, some hospitals with more than 100 cases may still have unstable rates and caution should be exercised in interpreting rates with wide confidence intervals. The data presented above are age-sex standardised mortality rates per 100 cases. 95% confidence intervals for hospitals and hospital groups are shown by . Where the 95% confidence interval for a hospital or hospital group overlaps the 95% confidence interval of the national rate (i.e. the dashed green lines), it can be concluded that the rate is not statistically significantly different from the national rate and so is within the expected range. Where the 95% confidence interval for a hospital or hospital group does not overlap the confidence interval of the national rate, it implies that the mortality rate is statistically significantly different from the national rate and is therefore outside the expected range. Hospitals with a rate that is statistically significantly higher than the national rate are marked in orange.

(iii) In 2020 Ireland updated to the 10th edition of the ICD10-AM classification system. One change in the new edition is that rehabilitation can no longer be coded as a principal diagnosis. This means that some admissions to hospitals (as transfers) for rehabilitation following a stroke, which would previously have been coded with a principal diagnosis of rehabilitation, would be coded with a principal diagnosis of stroke from 2020 onwards. Caution is required in comparing data from 2020 onwards with previous years.

Table 3.2: Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke by hospital group and hospital, 2019-2021

Hospital Group	Number of Cases	Age-sex Standardised Mortality Rate (ASDR) per 100 Cases	Lower 95% Confidence Limit for ASDR	Upper 95% Confidence Limit for ASDR
Dublin Midlands	**647**	**24.22**	**21.00**	**27.44**
Midland Regional Hospital Portlaoise	52	-	-	-
Midland Regional Hospital Tullamore	76	-	-	-
Naas General Hospital	145	28.88	23.45	34.31
St. James' Hospital	200	25.69	19.34	32.04
Tallaght University Hospital	174	27.01	20.70	33.32
Ireland East	**1,083**	**22.69**	**20.22**	**25.16**
Cappagh National Orthopaedic Hospital	<10	-	-	-
Mater Misericordiae University Hospital	259	22.76	17.91	27.60
Midland Regional Hospital Mullingar	125	33.80	25.85	41.75
Our Lady's Hospital Navan	53	-	-	-
St. Columcille's Loughlinstown	20	-	-	-
St. Luke's General Hospital	79	-	-	-
St. Michael's Hospital	<10	-	-	-
St. Vincent's University Hospital	415	19.52	15.74	23.30
Wexford General Hospital	120	28.16	20.41	35.90
RCSI Hospitals	**1,503**	**16.92**	**14.90**	**18.95**
Beaumont Hospital	1,077	13.47	11.08	15.86
Cavan General Hospital	94	-	-	-
Connolly Hospital	125	24.93	18.05	31.81
Our Lady of Lourdes Hospital	207	26.80	19.82	33.78
Saolta	**656**	**23.62**	**20.22**	**27.01**
Galway University Hospital	217	28.63	22.63	34.62
Letterkenny University Hospital	130	28.03	20.86	35.20
Mayo University Hospital	115	29.34	21.91	36.78
Portiuncula University Hospital	49	-	-	-
Roscommon University Hospital	21	-	-	-
Sligo University Hospital	124	18.60	13.15	24.05
South / South West Hospital Group	**1,070**	**25.11**	**22.52**	**27.71**
Bantry General Hospital	**	-	-	-
Cork University Hospital	609	23.72	20.31	27.13
Mallow General Hospital	<4	-	-	-
Mercy University Hospital	58	-	-	-
South Tipperary General Hospital	78	-	-	-
University Hospital Kerry	142	30.53	22.28	38.77
University Hospital Waterford	117	38.91	31.24	46.59
UL Hospitals	**301**	**22.18**	**17.99**	**26.37**
St. Johns Hospital	<10	-	-	-
UL Hospitals Ennis	**	-	-	-
UL Hospitals Nenagh	19	-	-	-
University Hospital Limerick	254	25.50	20.80	30.20
Total for All Hospitals	**5,260**	**21.76**	**20.65**	**22.86**

Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Only data from hospitals which are part of Hospital Groups are included.
(ii) Hospitals with small numbers of cases tend to have unstable rates and wider confidence intervals. For this report rates are not displayed for hospitals with fewer than 100 cases, although the data for these hospitals have been included in the calculation of the national and group total rates. However, some hospitals with more than 100 cases may still have unstable rates and caution should be exercised in interpreting rates with wide confidence intervals.
(iii) For data protection reasons, data has been suppressed for any hospital with fewer than 10 cases. Secondary suppression, to avoid indirect disclosure of low numbers, is indicated by **
(iv) In 2020 Ireland updated to the 10th edition of the ICD10-AM classification system. One change in the new edition is that rehabilitation can no longer be coded as a principal diagnosis. This means that some admissions to hospitals (as transfers) for rehabilitation following a stroke, which would previously have been coded with a principal diagnosis of rehabilitation, would be coded with a principal diagnosis of stroke from 2020 onwards. Caution is required in comparing data from 2020 onwards with previous years.

In-hospital mortality within 30 days for ischaemic stroke

Definition

The number of patients aged 45 years and over who die in hospital within 30 days of being admitted with a principal diagnosis of an ischaemic stroke, as a proportion of the total number of patients aged 45 years and over admitted to that hospital with a principal diagnosis of an ischaemic stroke.

Description

A stroke is the sudden death of brain cells in a localised area due to inadequate blood flow caused by a haemorrhage (bleeding) or ischaemia (blood clot). An ischaemic stroke is caused by death of brain cells in a localized area due to inadequate blood flow caused by ischaemia (blood clot). This is the most common type of stroke, accounting for approximately 85% of strokes.

To improve morbidity and mortality outcomes, international evidence recommends that all stroke patients, on diagnosis, should be admitted to a properly equipped stroke unit, staffed by a multidisciplinary team, which should include, at a minimum, appropriately trained medical and nursing staff, physiotherapists, occupational therapists and speech and language therapists [25]. The Irish Council for Stroke Guidelines state that all hospitals providing care for acute stroke patients must make available immediate access to a specialist, acute stroke unit or comprehensive stroke unit (providing acute care and rehabilitation) with the capacity to monitor and regulate basic physiological functions [26].

In 2010 the National Clinical Programme for Stroke was developed with the key aims of:

- National rapid access to best-quality stroke services including acute stroke unit care and fast door-to-decision times for thrombolysis and thrombectomy where appropriate.
- Prevent 1 stroke every day
- Avoid death and dependence in 1 patient every day.

The Irish National Audit of Stroke (INAS) now sits within the National Cardiovascular Disease Audit Programme in the National Office of Clinical Audit (NOCA). In time, this may give additional information on the quality of stroke care provided. The *INAS National Report 2019* was published in December 2020. The INAS National Report 2020 was published in 2022.

Rationale for the inclusion of indicator

Stroke is a leading cause of morbidity and mortality in Ireland; over 7,000 people in Ireland are hospitalised following stroke each year [27] and approximately 2,000 people die as a result of stroke each year. Ischaemic strokes account for approximately 85% of all strokes which result in hospitalisation in Ireland annually [28].

Variations in stroke mortality rates reflect many factors including early recognition of symptoms, seeking medical care as quickly as possible and, potentially, differences in the care provided.

International evidence consistently shows that care in stroke units improves outcomes and reduces mortality for all groups and subtypes of stroke.

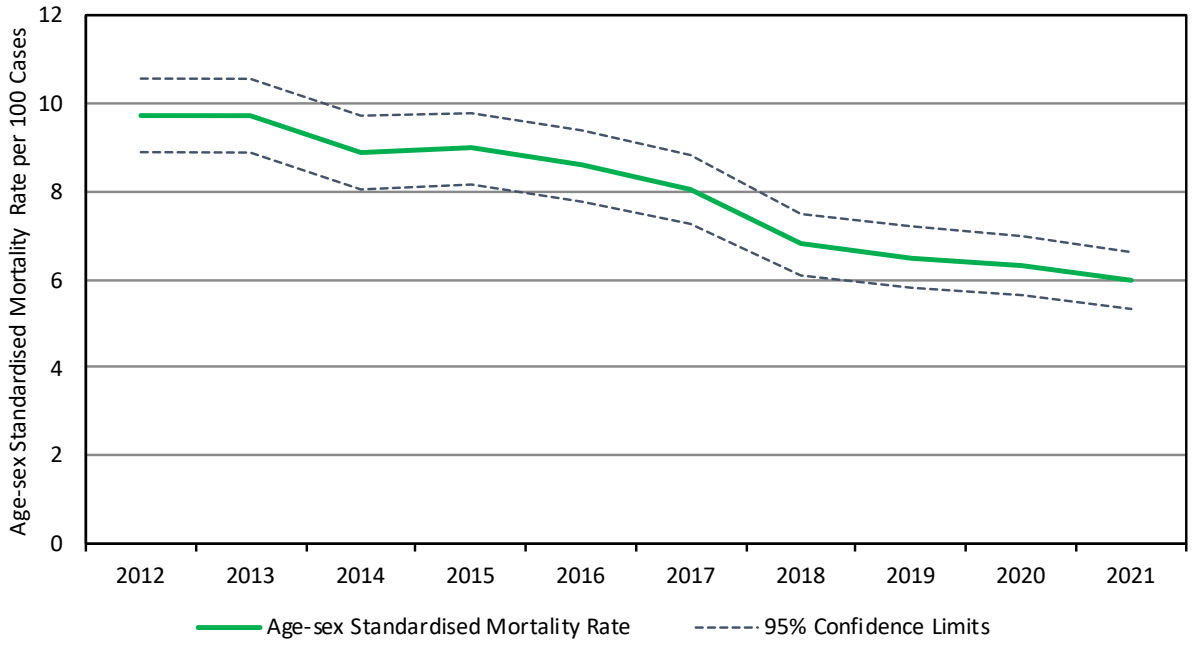
Commentary

- The age-sex standardised in-hospital mortality rate within 30 days of admission for ischaemic stroke decreased from 9.72 deaths per 100 cases admitted in 2012 to 5.98 deaths per 100 cases admitted in 2021, a reduction of 38%. The rate was 6.5 per 100 cases in 2019, this decreased to 6.32 in 2020 and further to 5.98 in 2021.
- In 2020, (the latest year for which OECD data is available), the average age-sex standardised in-hospital mortality rate within 30 days of admission with ischaemic stroke in Ireland (6.4), was lower than the OECD average rate (i.e., 8.1 deaths per 100 cases admitted). Only eight countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years.
- During the 3-year period from 2019-2021, age-sex standardised in-hospital mortality rate for two hospitals (in orange) was statistically significantly higher than the national rate at the 95% confidence level. The rates for all other hospitals were within or lower than the expected range.
- It is important to note however that the age-sex standardised rates presented here are high level indicators only. There can be many reasons why a hospital would have higher or lower rates than the national average, including:
  a) differences in the types of patients attending different hospitals (for example, some hospitals may have a higher or lower proportion of patients with other medical conditions attending than others and this may influence outcomes),

b) inconsistencies in the quality of the data gathered in different hospitals,
c) differences in access to medical care prior to arrival at the hospital, transfer patterns of patients between different hospitals,

- Therefore, it cannot be concluded that a high mortality rate is indicative of poor-quality care. Rather it provides an indication that a further evaluation should be carried out to determine the reasons for the identified variation in mortality rates.

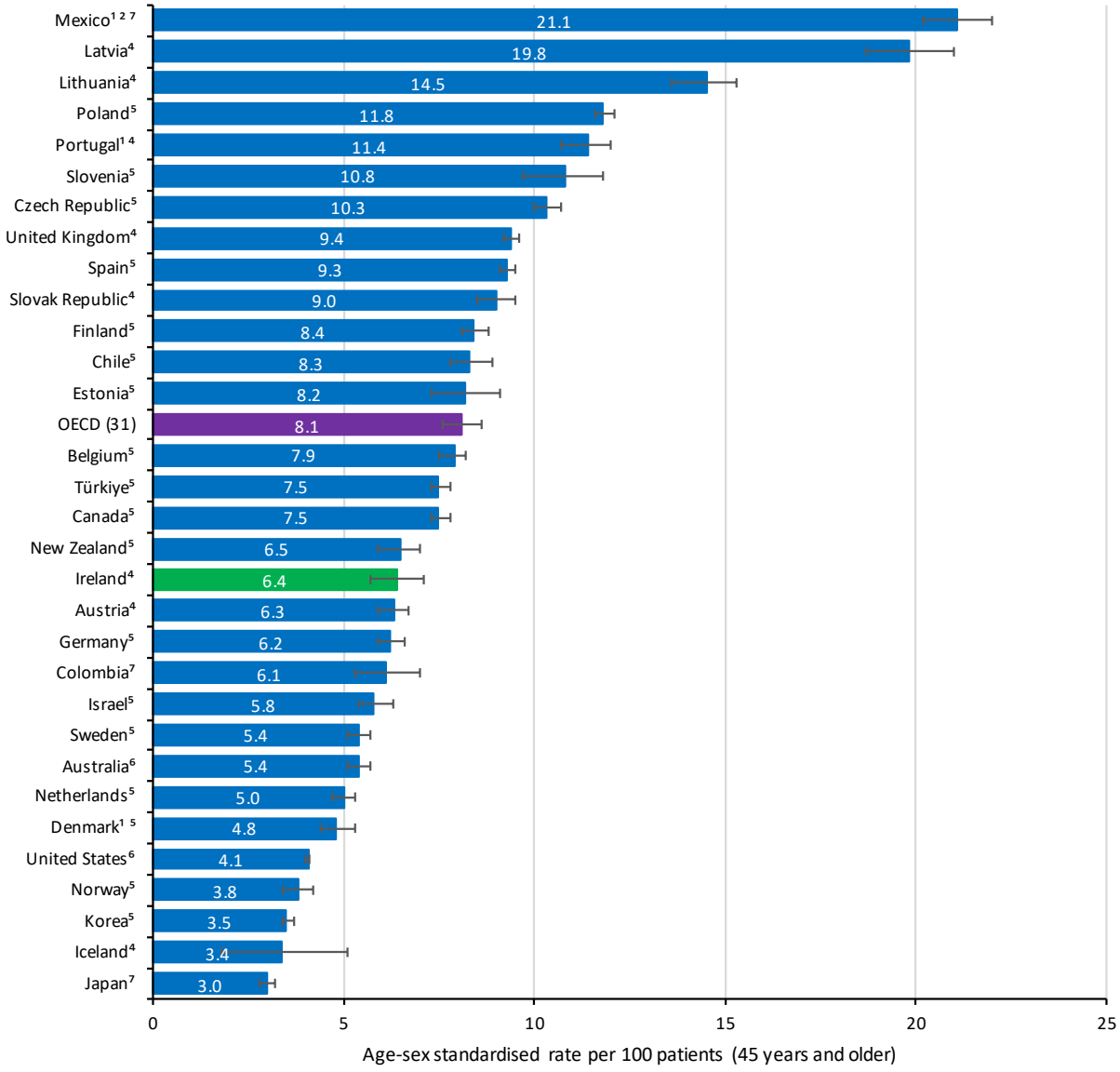
Figure 3.20: Age-sex standardised in-hospital mortality rates within 30 days of admission for ischaemic stroke, 2012-2021 (OECD age-sex standardisation, aged 45+ only)



Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Only data from hospitals which are part of Hospital Groups are included.
(ii) In 2020 Ireland updated to the 10th edition of the ICD10-AM classification system. One change in the new edition is that rehabilitation can no longer be coded as a principal diagnosis. This means that some admissions to hospitals (as transfers) for rehabilitation following a stroke, which would previously have been coded with a principal diagnosis of rehabilitation, would be coded with a principal diagnosis of stroke from 2020 onwards. Caution is required in comparing data from 2020 onwards with previous years.

Figure 3.21: Age-sex standardised in-hospital mortality rates within 30 days of admission for ischaemic stroke (45 years and older) for selected OECD countries, 2020 (or nearest year)

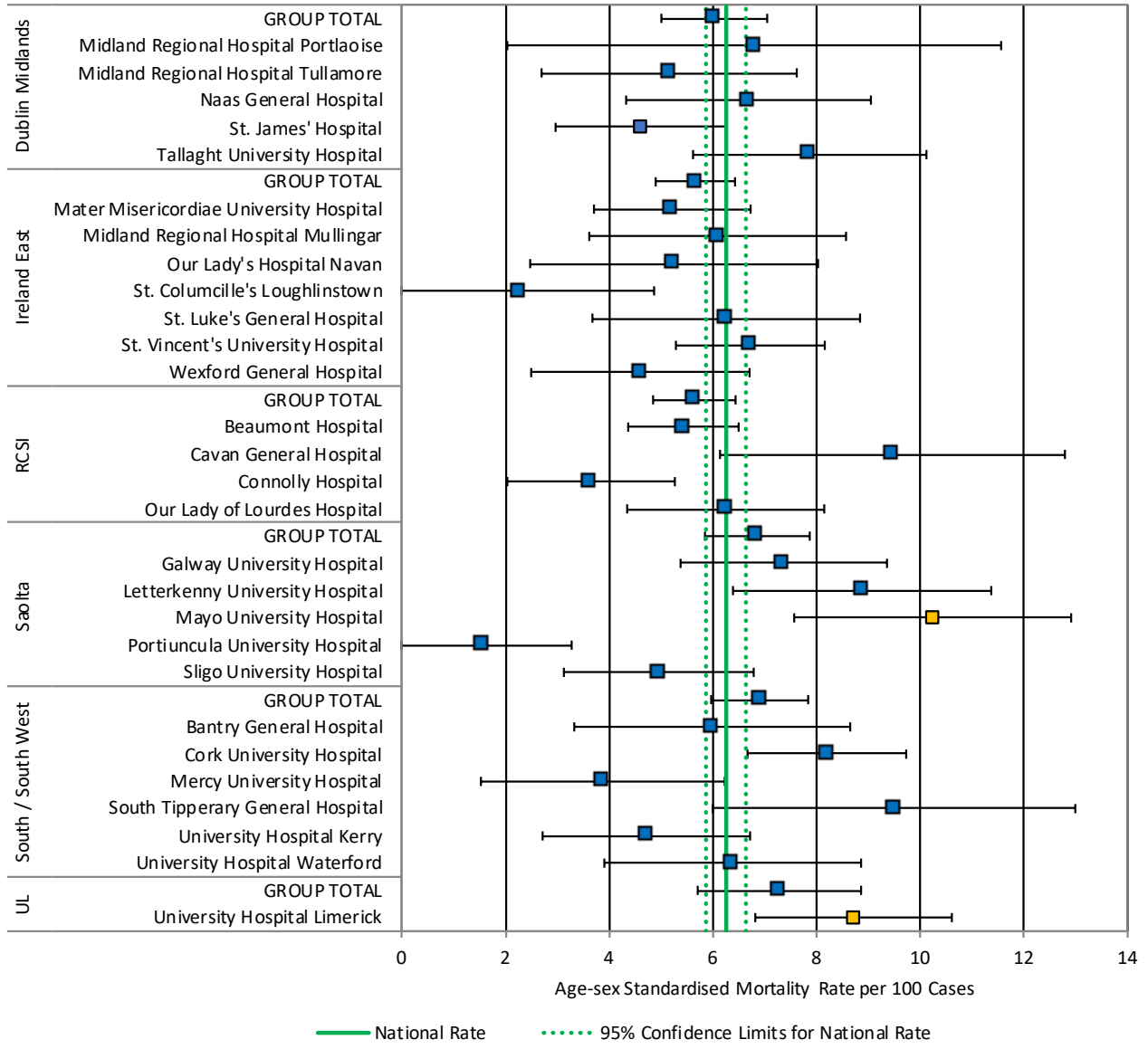


[1] Estimated value; [2] Different methodology; [3] Break in series, [4] 2020; [5] 2019; [6] 2018; [7] 2017

Source: OECD Health Statistics

Notes:
(i) Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves. 95% confidence intervals represented by ⊢.
(ii) The above data is 'Unlinked' data (or 'admission-based'). It refers to hospital data that comes from a single hospital admission. These data are not linked to other hospital admissions or death outside the hospital using a unique patient
(iii) Eight countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.
(iv) OECD (31) average based on latest available year's data for countries which have reported for 2016 or later.

Figure 3.22: Age-sex standardised in-hospital mortality rates within 30 days of admission for ischaemic stroke by hospital group and hospital, 2019-2021 (OECD age-sex standardisation, aged 45+ only)



Source: Hospital In-Patient Enquiry (HIPE)

Notes:

(i) Only data from hospitals which are part of Hospital Groups are included.

(ii) Hospitals with small numbers of cases tend to have unstable rates and wider confidence intervals. For this report rates are not displayed for hospitals with fewer than 100 cases, although the data for these hospitals have been included in the calculation of the national and group total rates. However, some hospitals with more than 100 cases may still have unstable rates and caution should be exercised in interpreting rates with wide confidence intervals. Where a lower confidence interval is negative, this has been set as 0. The data presented above are age-sex standardised mortality rates per 100 cases. 95% confidence intervals for hospitals and hospital groups are shown by ⍰. Where the 95% confidence interval for a hospital or hospital group overlaps the 95% confidence interval of the national rate (i.e. the dashed green lines), it can be concluded that the rate is not statistically significantly different from the national rate and so is within the expected range. Where the 95% confidence interval for a hospital or hospital group does not overlap the confidence interval of the national rate, it implies that the mortality rate is statistically significantly different from the national rate and is therefore outside the expected range. There can be many reasons for variations in mortality rates including differences in patient profiles; data quality issues; and differences in the quality of care. Any hospital with a rate that is statistically significantly higher than the national rate is marked in orange. Rates for all other hospitals and hospital groups are below or within the expected range of the national rate.

(iii) In 2020 Ireland updated to the 10th edition of the ICD10-AM classification system. One change in the new edition is that rehabilitation can no longer be coded as a principal diagnosis. This means that some admissions to hospitals (as transfers) for rehabilitation following a stroke, which would previously have been coded with a principal diagnosis of rehabilitation, would be coded with a principal diagnosis of stroke from 2020 onwards. Caution is required in comparing data from 2020 onwards with previous years.

Table 3.3: Age-sex standardised in-hospital mortality rates within 30 days of admission for ischaemic stroke by hospital group and hospital, 2019-2021 (OECD age-sex standardisation, aged 45+ only)

Hospital Group	Number of Cases	Age-sex Standardised Mortality Rate (ASDR) per 100 Cases	Lower 95% Confidence Limit for ASDR	Upper 95% Confidence Limit for ASDR
Dublin Midlands	**2,237**	**6.03**	**5.01**	**7.05**
Midland Regional Hospital Portlaoise	139	6.80	2.04	11.56
Midland Regional Hospital Tullamore	264	5.16	2.70	7.62
Naas General Hospital	509	6.69	4.33	9.05
St. James' Hospital	635	4.61	2.97	6.26
Tallaght University Hospital	690	7.87	5.62	10.12
Ireland East	**3,291**	**5.66**	**4.90**	**6.43**
Cappagh National Orthopaedic Hospital	22	-	-	-
Mater Misericordiae University Hospital	795	5.22	3.71	6.73
Midland Regional Hospital Mullingar	381	6.09	3.62	8.57
Our Lady's Hospital Navan	186	5.25	2.48	8.03
St. Columcille's Loughlinstown	143	2.28	0.00	4.87
St. Luke's General Hospital	338	6.26	3.68	8.84
St. Michael's Hospital	14	-	-	-
St. Vincent's University Hospital	1,053	6.73	5.29	8.16
Wexford General Hospital	359	4.60	2.50	6.71
RCSI	**3,416**	**5.65**	**4.85**	**6.44**
Beaumont Hospital	1,854	5.43	4.37	6.50
Cavan General Hospital	371	9.46	6.14	12.79
Connolly Hospital	568	3.65	2.04	5.27
Our Lady of Lourdes Hospital	623	6.25	4.35	8.15
Saolta	**2,394**	**6.86**	**5.85**	**7.87**
Galway University Hospital	694	7.37	5.38	9.36
Letterkenny University Hospital	466	8.88	6.39	11.37
Mayo University Hospital	494	10.24	7.57	12.91
Portiuncula University Hospital	161	1.58	0.00	3.28
Roscommon University Hospital	56	-	-	-
Sligo University Hospital	523	4.96	3.13	6.79
South/South West	**2,765**	**6.91**	**5.97**	**7.84**
Bantry General Hospital	219	5.99	3.33	8.65
Cork University Hospital	1,236	8.20	6.67	9.73
Mallow General Hospital	31	-	-	-
Mercy University Hospital	258	3.88	1.53	6.23
South Tipperary General Hospital	267	9.49	6.00	12.99
University Hospital Kerry	368	4.72	2.72	6.72
University Hospital Waterford	386	6.38	3.91	8.86
UL Hospitals	**1,058**	**7.28**	**5.71**	**8.86**
St. John's Hospital	48	-	-	-
UL Hospitals Ennis	71	-	-	-
UL Hospitals Nenagh	49	-	-	-
University Hospital Limerick	890	8.71	6.82	10.61
Total for All Hospitals	**15,161**	**6.26**	**5.87**	**6.64**

Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) Only data from hospitals which are part of Hospital Groups are included.
(ii) Hospitals with small numbers of cases tend to have unstable rates and wider confidence intervals. For this report rates are not displayed for hospitals with fewer than 100 cases, although the data for these hospitals have been included in the calculation of the national and group total rates. However, some hospitals with more than 100 cases may still have unstable rates and caution should be exercised in interpreting rates with wide confidence intervals.
(iii) In 2020 Ireland updated to the 10th edition of the ICD10-AM classification system. One change in the new edition is that rehabilitation can no longer be coded as a principal diagnosis. This means that some admissions to hospitals (as transfers) for rehabilitation following a stroke, which would previously have been coded with a principal diagnosis of rehabilitation, would be coded with a principal diagnosis of stroke from 2020 onwards. Caution is required in comparing data from 2020 onwards with previous years.

In-hospital waiting time for hip fracture surgery

Definition

The in-hospital waiting time for hip fracture surgery indicator is defined as the proportion of patients aged 65 years and older with a hip fracture who have surgery within two days of admission.

Description

There are a number of reasons why surgery may be delayed. In some cases, patients need to be treated for other medical conditions in order to ensure that they are fit to undergo surgery. However, delays may also occur as a result of administrative or logistical issues. Evidence demonstrates better outcomes are associated with timely surgery, where possible within 48 hours (2 days) of the patient's admission.

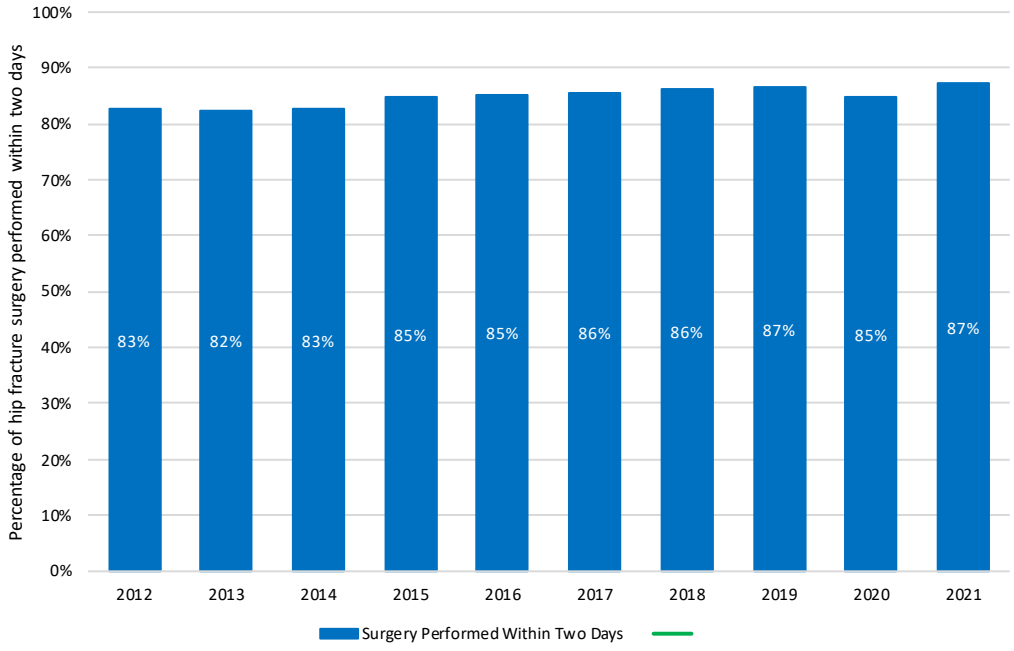
Rationale for the inclusion of indicator

Hip fracture, which is associated with increasing age, can lead to a significant risk of serious illness and sometimes death [29], [30]. The standard treatment for hip fracture is surgery. Outcomes for patients are better if this surgery is timely (i.e., that the surgery happens as soon as possible after admission and when the patient is ready and fit for surgery) [31].

Commentary

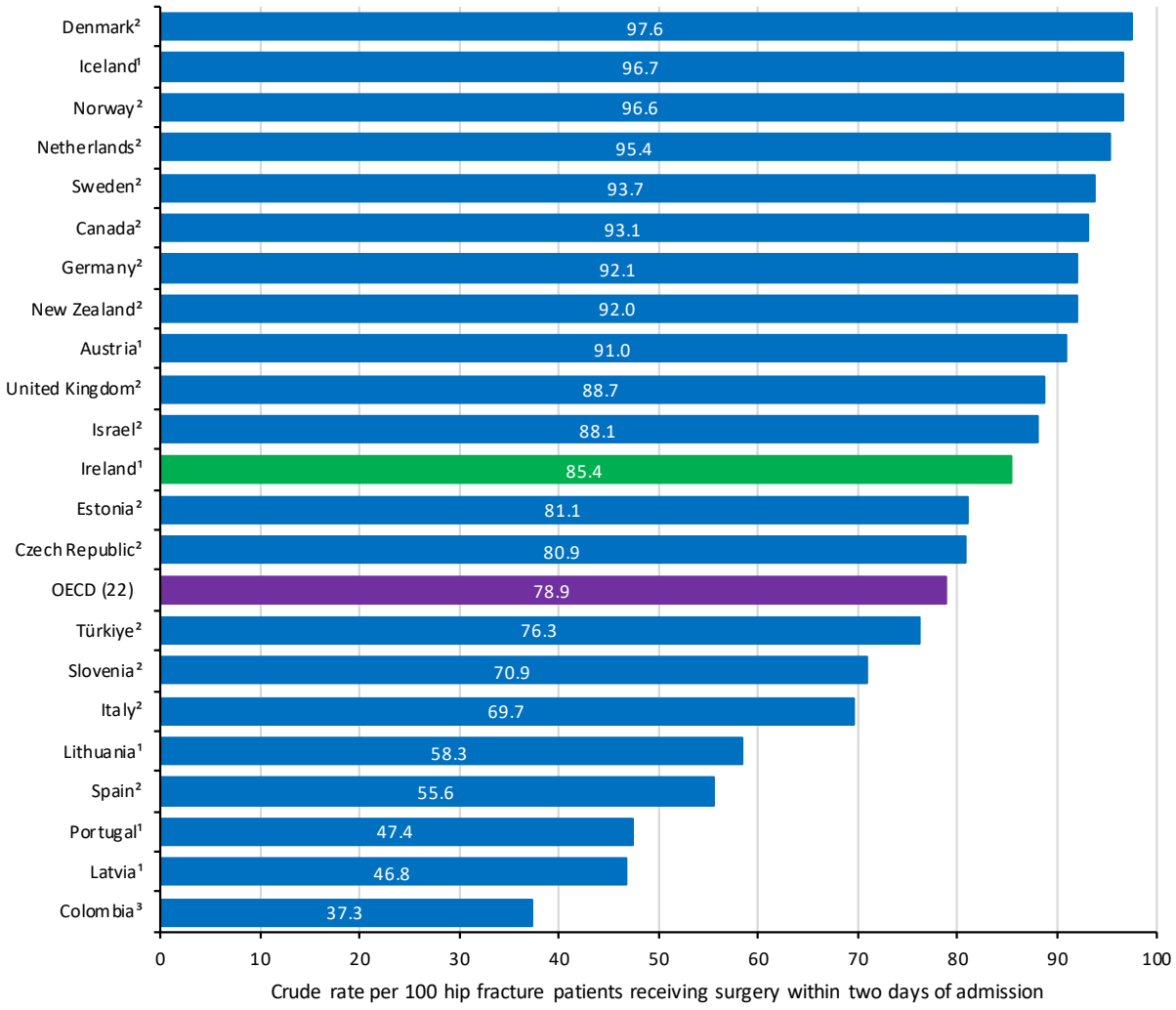
- The proportion of patients aged 65 years and older with a hip fracture undergoing surgery within two days of admission improved from 83% in 2012 to 87% in 2019. The rate decreased slightly to 85% in 2020 but returned to 87% in 2021 (the same rate as 2019).
- In 2020 (the latest year for which OECD data is available), the average proportion of patients with a hip fracture undergoing surgery within two days in Ireland was 85.4% - slightly above the OECD average of 78.8%. Only six countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years.
- During the 3-year period 2019-2021 there was a variation between hospitals in the proportion of hip fracture cases undergoing surgery within two days. Hospital rates varied from 75% to 99% of surgeries occurring within two-days. The national rate was 86.4%. This is similar to the national average for the period from 2017-2019 (86.3%).

Figure 3.23: In-hospital waiting time for hip fracture surgery - percentage of cases (aged 65 years and older) undergoing surgery within 2 days of admission, 2012-2021



Source: Hospital In-Patient Enquiry (HIPE)

Figure 3.24: In-hospital waiting time for hip fracture surgery - crude rate per 100 patients (65 years and older) undergoing surgery within 2 days of admission for selected OECD countries, 2020 (or nearest year)

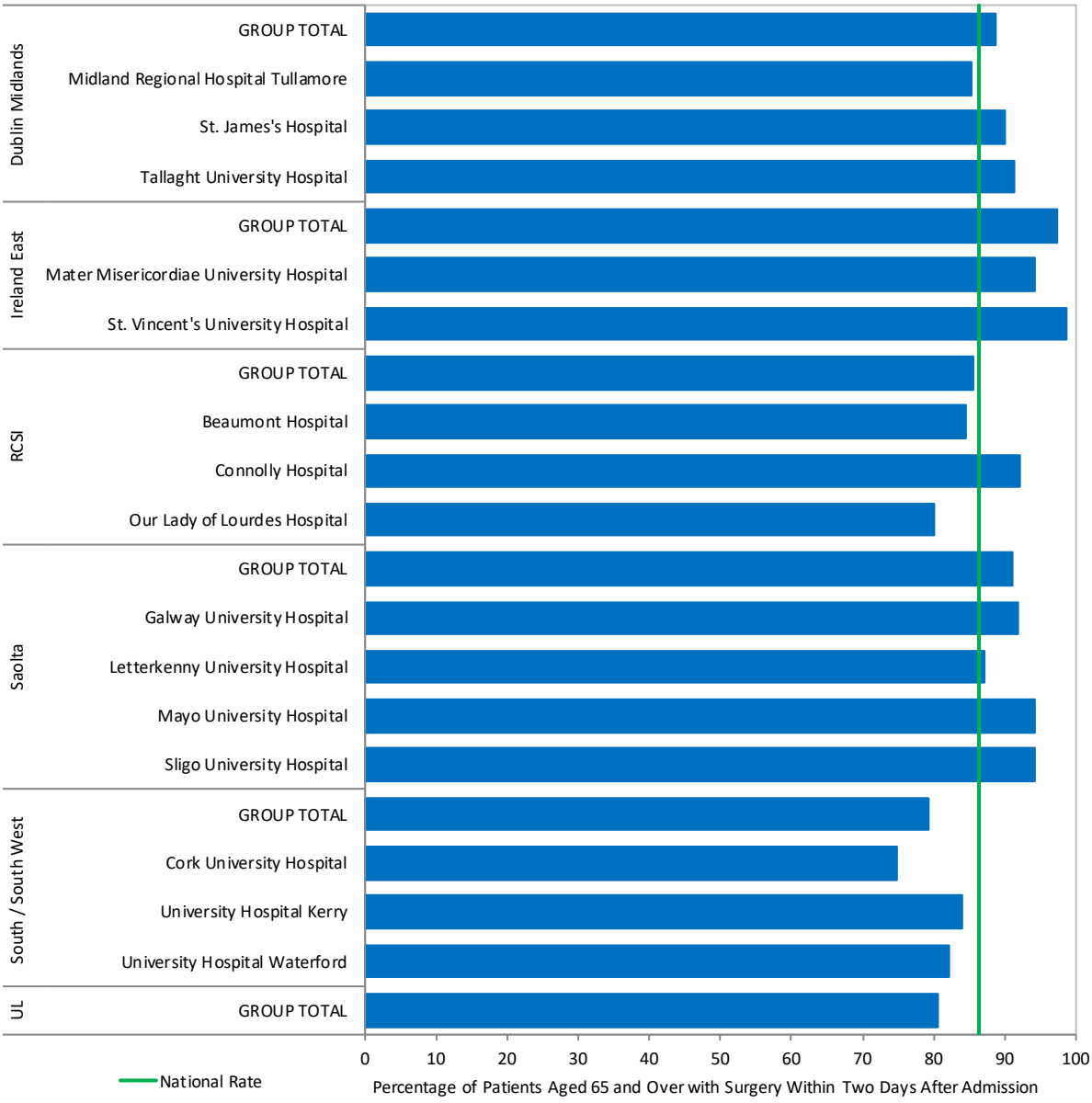


[1] 2020; [2] 2019; [3] 2017

Source: OECD Health Statistics

Notes:
(i) Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves.
(ii) Six countries, including Ireland, have provided data for 2020 which would have been impacted by COVID-19. Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.
(iv) OECD (22) average based on latest available year's data for countries which have reported for 2016 or later.

Figure 3.25: In-hospital waiting time for hip fracture surgery - proportion of cases (65 years and older) undergoing surgery within 2 days of admission by hospital group and hospital, 2019-2021



Source: Hospital In-Patient Enquiry (HIPE)

Note: There are a number of reasons why surgery may be delayed. In some cases, patients need to be treated for other medical conditions in order to ensure that they are fit to undergo surgery.

Table 3.4: In-hospital waiting time for hip fracture surgery - proportion of cases (65 years and older) undergoing surgery within 2 days of admission by hospital group and hospital, 2019 – 2021

Hospital Group	Number of Hip Fracture Admissions	Percentage with Surgery within 2 Days
Dublin Midlands	**2,237**	**6.03**
Midland Regional Hospital Tullamore	582	85.2
St. James's Hospital	435	90.1
Tallaght University Hospital	549	91.4
Ireland East	**3,291**	**5.66**
Mater Misericordiae University Hospital	348	94.3
St. Vincent's University Hospital	879	98.8
RCSI	**3,416**	**5.65**
Beaumont Hospital	618	84.5
Connolly Hospital	567	92.2
Our Lady of Lourdes Hospital	538	80.1
Saolta	**2,394**	**6.86**
Galway University Hospital	599	91.8
Letterkenny University Hospital	368	87.2
Mayo University Hospital	343	94.2
Sligo University Hospital	343	90.4
South/South West	**2,765**	**6.91**
Cork University Hospital	1,203	74.8
University Hospital Kerry	382	84.0
University Hospital Waterford	1,104	82.3
UL Hospitals	**1,058**	**7.28**
University Hospital Limerick	809	80.6
Total for All Hospitals	**9,668**	**86.4**

Source: Hospital In-Patient Enquiry (HIPE)

Notes:
(i) The difference between the total number of cases reported for the UL Hospitals Group and the total for University Hospital Limerick is due to one case admitted to another hospital in the group, to protect confidentiality this hospital is not shown in the Table.
(ii) There are a number of reasons why surgery may be delayed. In some cases, patients need to be treated for other medical conditions in order to ensure tha they are fit to undergo surgery.

Caesarean section rates

Definition

The rate of caesarean section deliveries per 100 live births.

Description

Rates of caesarean delivery as a percentage of all live births have increased in almost all OECD countries in recent decades with the average rate across countries going up from 20% in 2000 to 28% in 2017, although the growth rate in many countries has slowed since 2012. There are many possible reasons suggested by the OECD for these increases including reduced risks associated with caesarean delivery, increasing litigation, increases in first births among older women, and the rise in multiple births resulting from assisted reproduction [32].

The rates of caesarean sections per number of live births are commonly reported internationally and are also reported by the OECD. To allow for comparison with other OECD countries, rates of caesarean section deliveries per 100 live births in Ireland were calculated. These calculations do not take into account multiple births, history of caesarean section, or other factors which may impact on the likelihood of having a caesarean section.

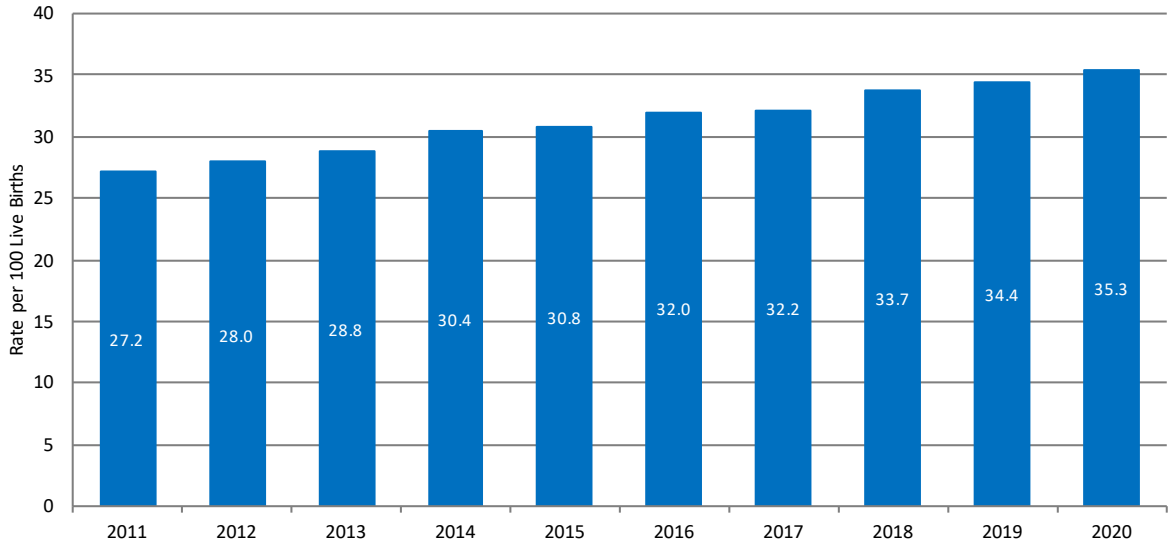
Rationale for the inclusion of indicator

The National Maternity Strategy (2016-2026) aims to ensure that women have access to safe, high quality, nationally consistent woman-centred maternity care [33].

Commentary

- The national rates of caesarean section per 100 live births increased over the 10-year-period from 2011 (27.2) to 2020 (35.3).
- In 2020 (the latest available data) the caesarean section rate for Ireland was 34.7 per 100 live births, which was above the OECD rate of 27.8.
- There was some variation observed in the rates of caesarean section per 100 live births in 2020 in maternity hospitals in Ireland. However, it should be noted that the findings presented in this report are from a high-level analysis which does not take into account a number of factors that are known to impact on caesarean section rates including age of the mother, history of caesarean section, multiple births, or complex presentations and pregnancies.
- The total number of live births has been decreasing over the 3-year period from 2018 (59,740), to 58,037 in 2019 and 55,570 in 2020, however the rate of caesarean section per 100 live births has been increasing.
- The National Women and Infants Health Programme recommends that hospitals examine their caesarean-section rates in light of their individual case mixes in line with Ten-Group Robson classification as this is the global standard recommended by the World Health Organisation. Additionally, the caesarean-section rate should be considered along with appropriate outcome measures.

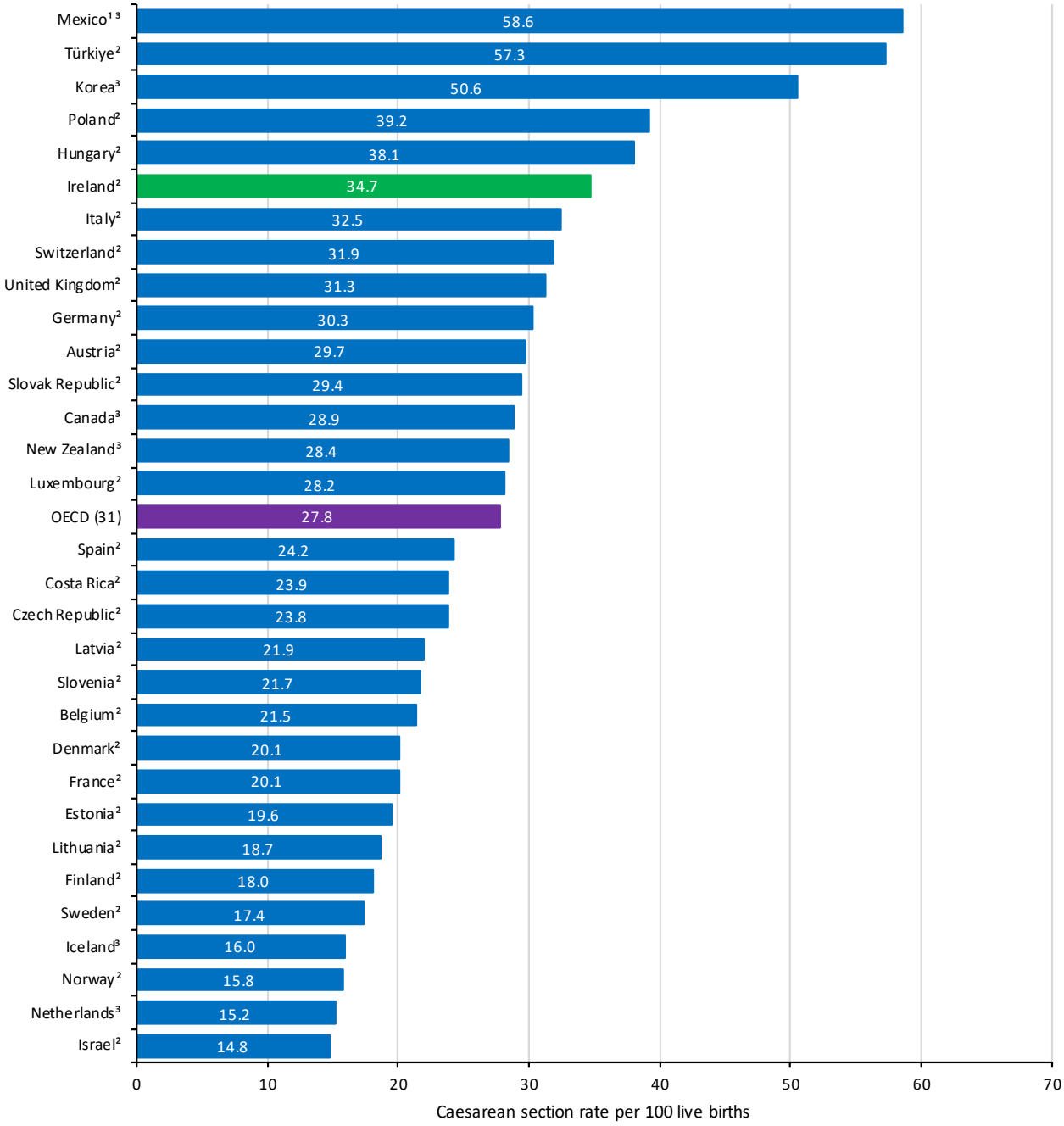
Figure 3.26: Caesarean section rates per 100 live births, 2011 – 2020



Source: National Perinatal Reporting System (NPRS), Healthcare Pricing Office (HPO)

Notes:
(i) Based on live births for total maternities. Only includes births from maternity units.
(ii) Percentages are subject to rounding.
(iii) In accordance with the WHO guidelines, only births weighing 500 grams, or more are included in any analysis of NPRS data.
(iv) 2020 data is unpublished.

Figure 3.27: Caesarean section rates per 100 live births for selected OECD countries, 2020 (or latest year)

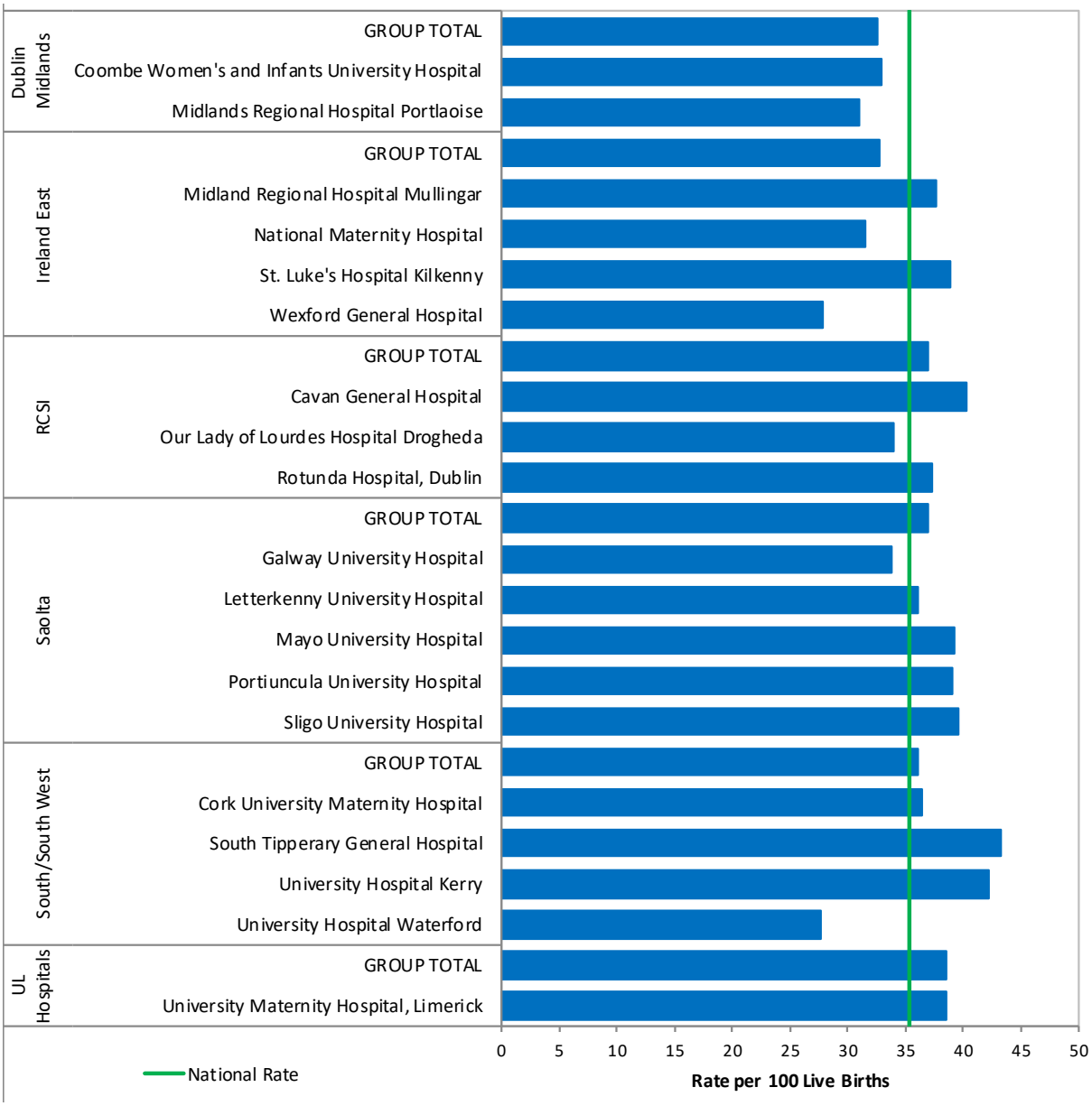


[1] Estimated value; [2] 2020; [3] 2019.

Source: OECD Health Statistics

Notes:
(i) Data is presented as published by the OECD; when comparing rates between countries it should be noted that differences may be due to the method of collection, the scope of data collection or the quality of the data collected as well as due to differences in the rates themselves.
(ii) Data for Ireland on the number of caesarean sections is based on data from the Hospital Inpatient Enquiry (HIPE) and data on the number of live births is based on data reported by the Central Statistics Office (CSO). Hence the rate per 100 live births may differ from that reported by the National Perinatal Reporting System elsewhere in the report due to some differences in definition and coding (e.g., NPRS data excludes births weighting <500g).

Figure 3.28: Caesarean section rates per 100 live births by hospital group and hospital, 2020



Source: National Perinatal Reporting System (NPRS), Healthcare Pricing Office (HPO)

Notes:
(i) Based on live births for total maternities. Only includes births from maternity units.
(ii) Percentages are subject to rounding.
(iii) In accordance with the WHO guidelines, only births weighing 500 grams, or more are included in any analysis of NPRS data.
(iv) 2020 data is unpublished.

Table 3.5: Caesarean section rates per 100 live births by hospital group and hospital, 2018-2021

	2018		2019		2020	
Hospital Group	Number of Live Births	Rate of Caesarean Sections per 100 Live Births	Number of Live Births	Rate of Caesarean Sections per 100 Live Births	Number of Live Births	Rate of Caesarean Sections per 100 Live Births
Dublin Midlands	**9,527**	**33.2**	**9,177**	**33.8**	**8,772**	**32.6**
Coombe Women's and Infants University Hospital	8,135	33.8	7,714	33.9	7,382	32.9
Midlands Regional Hospital Portlaoise	1,392	30.0	1,463	33.5	1,390	30.9
Ireland East	**12,856**	**31.2**	**12,860**	**31.9**	**12,024**	**32.8**
Midland Regional Hospital Mullingar	1,930	35.0	1,961	36.0	1,814	37.7
National Maternity Hospital	7,725	29.2	7,828	30.5	7,223	31.5
St. Luke's Hospital Kilkenny	1,550	42.0	1,428	39.8	1,417	38.9
Wexford General Hospital	1,651	26.4	1,643	27.3	1,570	27.9
RCSI	**12,833**	**34.4**	**12,478**	**35.6**	**12,242**	**36.9**
Cavan General Hospital	1,490	37.9	1,354	41.4	1,350	40.3
Our Lady of Lourdes Hospital Drogheda	3,012	35.1	2,900	34.3	2,782	34.0
Rotunda Hospital, Dublin	8,331	33.6	8,224	35.1	8,110	37.4
Saolta	**8,861**	**36.4**	**8,736**	**36.7**	**8,132**	**37.0**
Galway University Hospital	2,797	34.7	2,772	35.9	2,548	33.8
Letterkenny University Hospital	1,684	37.4	1,613	37.1	1,525	36.1
Mayo University Hospital	1,476	38.3	1,507	38.9	1,387	39.1
Portiuncula University Hospital	1,575	35.9	1,501	36.8	1,375	39.1
South / South West	**11,319**	**33.1**	**10,723**	**33.7**	**10,360**	**36.2**
Cork University Maternity Hospital	7,375	32.7	6,985	34.2	6,849	36.3
South Tipperary General Hospital	956	39.1	871	36.7	769	43.3
University Hospital Kerry	1,228	39.6	1,174	37.3	1,138	42.2
UL Hospitals	**4,344**	**36.4**	**4,063**	**35.9**	**4,040**	**38.4**
University Maternity Hospital, Limerick	4,344	36.4	4,063	35.9	4,040	38.4
Total for All Hospitals	**59,740**	**33.7**	**58,037**	**34.4**	**55,570**	**35.3**

Source: National Perinatal Reporting System (NPRS), Healthcare Pricing Office (HPO)

Notes:
(i) Based on live births for total maternities. Only includes births from maternity units.
(ii) Percentages are subject to rounding.
(iii) In accordance with the WHO guidelines, only births weighing 500 grams, or more are included in any analysis of NPRS data.
(iv) 2020 data is unpublished.

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Domain 3 indicators metadata

Indicator	Breast cancer survival rates
Definition	Age-standardised estimates of cumulative 5-year net survival in Ireland for female breast cancer patients diagnosed in five diagnosis cohorts – 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018.
Years Covered	National: Cohorts 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018 OECD: Cohorts 2010-2014
Classification	ICD-10-AM C50, ICD-9-CM 174
Methodology	Age-standardised period estimates of 'Pohar Perme' estimates of net survival for the follow-up periods 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018 (for national data only). Five-year observed survival for women aged 15-99 diagnosed with breast cancer (first primary cancer at the specified site) divided by the expected survival of a comparable group from the general population (expressed in percentage). Survival estimates are standardised to the International Cancer Survival Standard (ICSS) populations [34].
Notes	Net survival is used throughout this report, following on from a methodological change by the OECD. Some previous NHQRS publications have used the concept of relative survival. Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death, i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata. Reference: [35]. Survival estimates are standardised to the International Cancer Survival Standard (ICSS) populations proposed for each cancer [34] **Exclusions:** Patients aged <15 or >99 at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour. Cancer registration is a dynamic process and information is continually updated on the National Cancer Registry of Ireland (NCRI) database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.
Data Source(s)	National Cancer Registry of Ireland OECD Health Statistics

Indicator	Cervical cancer survival rates
Definition	Age-standardised estimates of cumulative 5-year net survival in Ireland for cervical cancer patients in five diagnosis cohorts – 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018.
Years Covered	National: Cohorts 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018 OECD: Cohorts 2010-2014
Classification	ICD-10-AM C53, ICD-9-CM 180
Methodology	Age-standardised period estimates of 'Pohar Perme' estimates of net survival for the follow-up periods 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018 (for national data only). Five-year observed survival for women aged 15-99 diagnosed with cervical cancer (first primary cancer at the specified site) divided by the expected survival of a comparable group from the general population (expressed in percentage). Survival estimates are standardised to the International Cancer Survival Standard (ICSS) populations [34].
Notes	Net survival is used throughout this report, following on from a methodological change by the OECD. Some previous NHQRS publications have used the concept of relative survival. Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death, i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata. [35] Survival estimates are standardized to the International Cancer Survival Standard (ICSS) populations proposed for each cancer [34] Exclusions: Patients aged <15 or >99 at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour. Cancer registration is a dynamic process and information is continually updated on the National Cancer Registry of Ireland database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.
Data Source(s)	National Cancer Registry of Ireland OECD Health Statistics

Indicator	Colorectal cancer survival rates
Definition	Age-standardised estimates of cumulative 5-year net survival in Ireland for colorectal cancer patients in five diagnosis cohorts – 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018
Years Covered	National: Cohorts 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018 OECD: Cohorts 2010-2014
Classification	ICD-10-AM C18-21, ICD-9-CM 153-154
Methodology	Age-standardised period estimates of 'Pohar Perme' estimates of net survival for the follow-up periods 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018 (for national data only). Five-year observed survival for the total population aged 15-99 diagnosed with colorectal cancer (first primary cancer at the specified site) divided by the expected survival of a comparable group from the general population (expressed in percentage). Survival estimates are standardized to the International Cancer Survival Standard (ICSS) populations [34].
Notes	Net survival is used throughout this report, following on from a methodological change by the OECD. Some previous NHQRS publications have used the concept of relative survival. Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death, i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata. [35] Survival estimates are standardized to the International Cancer Survival Standard (ICSS) populations proposed for each cancer [34] . **Exclusions:** Patients aged <15 or >99 at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously- diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour. Cancer registration is a dynamic process and information is continually updated on the National Cancer Registry of Ireland database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.
Data Source(s)	National Cancer Registry of Ireland OECD Health Statistics

Indicator	Lung cancer survival rates
Definition	Age-standardised estimates of cumulative 5-year net survival in Ireland for lung cancer patients in five diagnosis cohorts – 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018.
Years Covered	National: Cohorts 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018 OECD: Cohorts 2010-2014
Classification	ICD-10-AM C18-21, ICD-9-CM 153-154
Methodology	Age-standardized period estimates of 'Pohar Perme' estimates of net survival for the follow-up periods 1994-1998, 1999-2003, 2004-2008, 2009-2013 and 2014-2018 (for national data only). Five-year observed survival for the total population aged 15-99 diagnosed with colorectal cancer (first primary cancer at the specified site) divided by the expected survival of a comparable group from the general population (expressed in percentage). Survival estimates are standardised to the International Cancer Survival Standard (ICSS) populations [34].
Notes	Net survival is used throughout this report, following on from a methodological change by the OECD. Some previous NHQRS publications have used the concept of relative survival. Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation in which the disease of interest is the only possible cause of death, i.e. survival having controlled for other possible cause of death (by comparison of observed survival with the expected survival of persons of the same age and gender in the general population). Estimates here are 'Pohar Perme' estimates of net survival, implemented using the 'Strs' algorithm in Stata. [35]. Survival estimates are standardised to the International Cancer Survival Standard (ICSS) populations proposed for each cancer [34]. **Exclusions:** Patients aged <15 or >99 at diagnosis; death-certificate-only (DCO) and autopsy-only cases; second or subsequent malignancies in the same patient (or the less serious of two or more synchronously-diagnosed malignancies); in situ carcinomas, benign tumours and tumours of uncertain behaviour. Cancer registration is a dynamic process and information is continually updated on the National Cancer Registry of Ireland database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on the NCRI website.
Data Source(s)	National Cancer Registry of Ireland OECD Health Statistics

Indicator	Breast Cancer Surgical Activity
Definition	The number of breast cancer surgical procedures undertaken in the designated cancer centres each year in Ireland, in patients whose principal diagnosis is breast cancer, 2012-2021. The proportion of all breast cancer surgical procedures nationally, in HIPE-contributing hospitals, undertaken in cancer centres, in patients whose principal diagnosis is breast cancer, 2012-2021.
Years Covered	National Trend: 2012-2021
Classification	**Principal Diagnosis:** ICD-10-AM C50, D051 All Procedures: ACHI 3150000, 3151500, 3152400, 3152401, 3151800, 3151801 Designated Cancer Centres (adult): Cork University Hospital, Limerick University Hospital, University Hospital Galway (Letterkenny University Hospital acts as a satellite of UHG for breast cancer services), Waterford University Hospital, Beaumont Hospital, Mater Misericordiae University Hospital, St. Vincent's University Hospital, St. James's Hospital
Methodology	Total number nationally (in HIPE-contributing hospitals) of principal procedures (ACHI codes above) undertaken in female patients whose principal diagnosis is breast cancer (ICD-10-AM codes above). The proportion of the total number as outlined above undertaken in the designated cancer centres (ICD-10-AM/ ACHI codes above)
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code [36]. **Exclusions:** Patients <15 years of age. Male patients. Surgical procedures in private hospitals. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease.
Data Source(s)	Hospital In-Patient Enquiry (HIPE) The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie.

Indicator	Colon cancer surgical rates
Definition	The number of colon cancer surgical procedures undertaken in the designated cancer centres each year in Ireland, in patients whose principal diagnosis is colon cancer, 2012-2021. The proportion of all colon cancer surgical procedures nationally, in HIPE-contributing hospitals, undertaken in the designated cancer centres, in patients whose principal diagnosis is colon cancer, 2012-2021.
Years Covered	National Trend: 2012 – 2021
Classification	**Principal Diagnosis:** ICD-10-AM C18, D010 **All Procedures:** ACHI 3200300, 3200000, 3200301, 3200001, 3200501, 3200401, 3200600, 3200601, 3200500, 3200400, 3201200, 3200900, 3202900, 9095900, 3211200, 3203000, 3204700, 3203900, 3206000, 4399301, 3202400, 3202500, 3202600, 3202800, 3201500, 3205100, 3205101, 9220800 **Additional procedures included from 2015** – based on update of ICD- 10-AM/ACHI classification to 8th edition: 3051503, 3051504, 3051505, 3051506, 3200302, 3200002, 3200303, 3200003, 3200503, 3200403, 3200602, 3200603, 3200502, 3200402, 3201201, 3200901 **Designated Cancer Centres (adult):** Cork University Hospital, Limerick University Hospital, University Hospital Galway, Waterford University Hospital, Beaumont Hospital, Mater Misericordiae University Hospital, St. Vincent's University Hospital, St. James's Hospital
Methodology	Total number nationally (in HIPE-contributing hospitals) of principal procedures (ACHI codes above) undertaken in patients whose principal diagnosis is colon cancer (ICD-10-AM codes above). The proportion of the total number as outlined above undertaken in the designated cancer centres (ICD-10-AM/ ACHI codes above).
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code [36]. **Exclusions:** Patients <15 years of age. Surgical procedures in private hospitals. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease.
Data Source(s)	Hospital In-Patient Enquiry (HIPE) The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie

Indicator	Rectal cancer surgical activity
Definition	The number of rectal cancer surgical procedures undertaken in the designated cancer centres each year in Ireland, in patients whose principal diagnosis is rectal cancer, 2012-2021. The proportion of all rectal cancer surgical procedures nationally, in HIPE-contributing hospitals, undertaken in the designated cancer centres, in patients whose principal diagnosis is rectal cancer, 2012-2021
Years Covered	National Trend: 2012-2021
Classification	**Principal Diagnosis:** ICD-10-AM C19, C20, D011, D012 **All Procedures:** ACHI 3211200, 3203000, 3204700, 3203900, 3206000, 4399301, 3202400, 3202500, 3202600, 3202800, 3201500, 3205100, 3205101, 9220800, 3200300, 3200000, 3200301, 3200001, 3200501, 3200401, 3200600, 3200601, 3200500,3200400, 3201200, 3200900, 3202900, 9095900 **Additional procedures included from 2015** – based on update of ICD-10-AM/ACHI classification to 8th edition: 3203001 **Designated Cancer Centres (adult):** Cork University Hospital, Limerick University Hospital, University Hospital Galway, Waterford University Hospital, Beaumont Hospital, Mater Misericordiae University Hospital, St. Vincent's University Hospital, St. James's Hospital
Methodology	Total number nationally (in HIPE-contributing hospitals) of principal procedures (ACHI codes above), undertaken in patients whose principal diagnosis is rectal cancer (ICD-10-AM codes above). The proportion of the total number as outlined above undertaken in the designated cancer centres (ICD-10-AM/ ACHI codes above).
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code [36]. Exclusions: Patients <15 years of age. Surgical procedures in private hospitals. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease.
Data Source(s)	Hospital In-Patient Enquiry (HIPE) The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie.

Indicator	In-hospital mortality within 30 days of admission for acute myocardial infarction/heart attack
Definition	The number of patients aged 45 and over who die in hospital within 30 days of being admitted with a principal diagnosis of an AMI, as a proportion of the total number of patients aged 45 and over admitted to that hospital with a principal diagnosis of an AMI.
Years Covered	National trend: 2012 – 2021 OECD comparison: 2020 (or nearest year) Hospital & hospital group level: 2019 – 2021 (aggregated)
Classification	ICD-10-AM I21 or I22 (Note: In the international comparison, some countries may use a different coding system)
Methodology	**Numerator:** Number of deaths in hospital that occurred within 30 days of hospital admission with a principal diagnosis of acute myocardial infarction in a specified year, ages 45 and over. **Denominator:** Number of hospitalisations of patients aged 45 and over with a principal diagnosis of acute myocardial infarction in the specified year. **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality Outcomes (HCQO) data collection. The definition of the indicator is available here https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf Age-sex standardised rates facilitate comparison of rates between populations of different age composition (for example hospitals or countries) and also of rates over time. The age-sex standardised death rate (ASDR) is the number of deaths per 100 cases that would occur if the hospital, country or year had the same age structure as the OECD Standard Population and the local age-sex specific rates applied. Age-sex standardised deaths rates (ASDRs) and associated confidence limits are calculated as follows: i. The number of deaths and cases are calculated by males and females for each 5-year age-group from 45-49 to 85+ years. ii. Age & sex specific death rates are calculated for males and females for each age-group. iii. The age & sex specific death rates are multiplied by the number of cases in the OECD standard population (based on the total number of AMI hospitalisations in the OECD). iv. The age-sex standardised death rate (ASDR) is then calculated as the sum of the age & sex specific rates multiplied by the standard population and divided by the total number of cases in the standard population. v. Upper and lower confidence intervals are presented at the 95% confidence level and are calculated by ASDR ± 1.96 * Standard Error of ASDR where the standard error is determined from a binomial distribution.

Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code [36]. Data are based on discharges from publicly funded acute hospitals; private hospitals are not included. Data have been analysed at hospital and hospital group level. A small number of non-acute hospitals that are not included in the hospital groups participate in HIPE for historical reasons; these hospitals have been removed from this analysis. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease. 95% confidence intervals have been produced and these should be considered when interpreting the age-standardised death rates. Where the lower limit of the 95% confidence interval is above the upper 95% confidence limit of the national rate, it can be said that the rate is statistically significantly higher than the national rate at the 95% confidence level. Similarly, where the upper limit of the 95% confidence interval is below the lower 95% confidence limit of the national rate, it can be said that the rate is statistically significantly lower than the national rate at the 95% confidence level. Note that hospitals with small numbers of cases tend to have unstable rates and wider confidence intervals. For this report rates are not displayed for hospitals with fewer than 100 denominator cases, although the data for these hospitals have been included in the calculation of the national and hospital group rates. However, some hospitals with more than 100 cases may still have unstable rates and caution should be exercised in interpreting rates with wide confidence intervals. It is important to note that transfer patterns between hospitals have the potential to influence the in-hospital mortality rates. For some conditions there can be significant volumes of patients being transferred out of hospitals and being transferred into other hospitals. The indicators presented in this report are high-level indicators and while transfers are included in the data, transfer patterns are not taken into account. A more refined analysis of transfer patterns would be required to assess the full effect of transfers on the in-hospital mortality rates.
Data Source(s)	Hospital In-Patient Enquiry (HIPE) The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie. The data presented for this indicator are based on analysis of HIPE data carried out by the Department of Health using the definitions and methodology developed by the OECD Health Care Quality Outcomes (HCQO) project. The indicator definition used in the NHQRS is based on the OECD Healthcare and Quality Outcomes (HCQO) definition (https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf) which has been developed to allow the greatest international comparability. This allows for international comparison of Ireland's performance, a core element of the NHQRS. Rates quoted here will however differ from national level reports including the National Audit of Hospital Mortality (https://www.noca.ie/audits/national-audit-of-hospital-mortality) due to definitional differences. The current National Office of Clinical Audit Irish Heart Attack Audit reports metrics regarding the quality of care, and timeliness of reperfusion therapy, and mortality in-hospital and at 30-days for patients with STEMI only. No national audit for outcomes of non-STEMI care currently exists. Therefore, the reported mortality in the Irish National Heart Attack Audit differs from the broader definition used for 30-day AMI mortality in the NHQRS. OECD Health Statistics

Indicator	Stroke admissions to hospitals with stroke units
Definition	The proportion of patients nationally whose principal diagnosis is stroke, who are admitted to a hospital with a stroke unit on diagnosis.
Years Covered	Nationally 2019, 2020 and 2021
Classification	**Principal diagnosis:** ICD-10-AM I60, I61, I62, I63, I64 **Hospitals with Acute Stroke Unit:** St Vincent's University Hospital, St. James's Hospital, Tallaght University Hospital, Our Lady of Lourdes Hospital Drogheda, Cavan General Hospital, Beaumont Hospital, University Hospital Waterford, South Tipperary Hospital, Portiuncula Hospital, Mayo University Hospital. **Hospitals with combined Stroke Unit:** Mater Misercordaie University Hospital, Midland Regional Hospital Mullingar, Wexford General Hospital, St. Luke's Hospital Kilkenny, Naas General Hospital, Midland Regional Hospital Portlaoise, University Hospital Limerick, Cork University Hospital, Mercy Hospital Cork, Bantry Hospital, University Hospital Galway. Letterkenny University Hospital opened an Acute Stroke Unit in March 2021.
Methodology	The proportion of patients nationally whose principal diagnosis is stroke (ICD codes above) who are admitted to a hospital with a stroke unit. Analysis is limited to hospitals which are part of the hospital groups. The indicator included in the NHQRS differs from the HSE's KPI which refers to patients with a principal diagnosis of stroke who are admitted to a stroke unit [37]. Due to data limitations, the NHQRS indicator is patients with a principal diagnosis of stroke admitted to a hospital with a stroke unit, it does not specify if these patients were actually admitted to the stroke unit within that hospital. In 2020 Ireland updated to the 10th edition of the ICD10-AM classification system. One change in the new edition is that rehabilitation can no longer be coded as a principal diagnosis. This means that some admissions to hospitals for rehabilitation following a stroke, which would previously have been coded with a principal diagnosis of rehabilitation, would be coded with a principal diagnosis of stroke from 2020 onwards. Caution is required in comparing data from 2020 onwards with previous years.
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code [36]. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease.
Data Source(s)	Hospital In-Patient Enquiry (HIPE) The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie.

Indicator	In-hospital mortality within 30 days of admission for haemorrhagic stroke
Definition	The number of patients aged 45 and over who die in hospital within 30 days of being admitted with a principal diagnosis of an haemorrhagic stroke, as a proportion of the total number of patients aged 45 and over admitted to that hospital with a principal diagnosis of an haemorrhagic stroke.
Years Covered	National trend: 2012 – 2021 OECD comparison: 2020 (or nearest year) Hospital & hospital group level: 2019 – 2021 (aggregated)
Classification	ICD-10-AM I60 - I62 (Note: In the international comparison, some countries may use a different coding system)
Methodology	**Numerator:** Number of deaths in hospital that occurred within 30 days of hospital admission with a principal diagnosis of haemorrhagic stroke in a specified year, ages 45 and over. **Denominator:** Number of hospitalisations of patients aged 45 and over with a principal diagnosis of haemorrhagic stroke in the specified year. **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality Outcomes (HCQO) data collection. The definition of the indicator is available here https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf Age-sex standardised rates facilitate comparison of rates between populations of different age composition (for example hospitals or countries) and also of rates over time. The age-sex standardised death rate (ASDR) is the number of deaths per 100 cases that would occur if the hospital, country or year had the same age structure as the OECD Standard Population and the local age-sex specific rates applied.

Methodology contd.	Age-sex standardised deaths rates (ASDRs) and associated confidence limits are calculated as follows: i. The number of deaths and cases are calculated by males and females for each 5-year age-group from 45-49 to 85+ years. ii. Age & sex specific death rates are calculated for males and females for each age-group. iii. The age & sex specific death rates are multiplied by the number of cases in the OECD standard population (based on the total number of haemorrhagic stroke hospitalisations in the OECD). iv. The age-sex standardised death rate (ASDR) is then calculated as the sum of the age & sex specific rates multiplied by the standard population and divided by the total number of cases in the standard population. v. Upper and lower confidence intervals are presented at the 95% confidence level and are calculated by ASDR ± 1.96 * Standard Error of ASDR where the standard error is determined from a binomial distribution.
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code [36]. Data are based on discharges from publicly funded acute hospitals; private hospitals are not included. Data have been analysed at hospital and hospital group level. A small number of non-acute hospitals that are not included in the hospital groups participate in HIPE for historical reasons; these hospitals have been removed from this analysis. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease. 95% confidence intervals have been produced and these should be considered when interpreting the age-standardised death rates. Where the lower limit of the 95% confidence interval is above the upper 95% confidence limit of the national rate, it can be said that the rate is statistically significantly higher than the national rate at the 95% confidence level. Similarly, where the upper limit of the 95% confidence interval is below the lower 95% confidence limit of the national rate, it can be said that the rate is statistically significantly lower than the national rate at the 95% confidence level. Note that hospitals with small numbers of cases tend to have unstable rates and wider confidence intervals. For this report rates are not displayed for hospitals with fewer than 100 denominator cases, although the data for these hospitals have been included in the calculation of the national and hospital group rates. However, some hospitals with more than 100 cases may still have unstable rates and caution should be exercised in interpreting rates with wide confidence intervals. It is important to note that transfer patterns between hospitals have the potential to influence the in-hospital mortality rates. For some conditions there can be significant volumes of patients being transferred out of hospitals and being transferred into other hospitals. The indicators presented in this report are high-level indicators and while transfers are included in the data, transfer patterns are not taken into account. A more refined analysis of transfer patterns would be required to assess the full effect of transfers on the in-hospital mortality rates.
Data Source(s)	Hospital In-Patient Enquiry (HIPE) The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie. The data presented for this indicator are based on analysis of HIPE data carried out by the Department of Health using the definitions and methodology developed by the OECD Health Care Quality Outcomes (HCQO) project. The indicator definition used in the NHQRS is based on the OECD Healthcare and Quality Outcomes (HCQO) definition (https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf) which has been developed to allow the greatest international comparability. This allows for international comparison of Ireland's performance, a core element of the NHQRS. Rates quoted here will however differ from national level reports including the National Audit of Hospital Mortality (https://www.noca.ie/audits/national-audit-of-hospital-mortality) due to definitional differences. OECD Health Statistics

Indicator	**In-hospital mortality within 30 days of admission for ischaemic stroke**
Definition	The number of patients aged 45 and over who die in hospital within 30 days of being admitted with a principal diagnosis of an ischaemic stroke, as a proportion of the total number of patients aged 45 and over admitted to that hospital with a principal diagnosis of an ischaemic stroke.
Years Covered	National trend: 2012 – 2021 OECD comparison: 2020 (or nearest year) Hospital & hospital group level: 2019 – 2021 (aggregated)
Classification	ICD-10-AM I63 - I64 (Note: In the international comparison, some countries may use a different coding system)

Methodology	**Numerator:** Number of deaths in hospital that occurred within 30 days of hospital admission with a principal diagnosis of ischaemic stroke in a specified year, ages 45 and over. **Denominator**: Number of hospitalisations of patients aged 45 and over with a principal diagnosis of ischaemic stroke in the specified year. **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality Outcomes (HCQO) data collection. The definition of the indicator is available here https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf Age-sex standardised rates facilitate comparison of rates between populations of different age composition (for example hospitals or countries) and also of rates over time. The age-sex standardised death rate (ASDR) is the number of deaths per 100 cases that would occur if the hospital, country or year had the same age structure as the OECD Standard Population and the local age-sex specific rates applied. Age-sex standardised deaths rates (ASDRs) and associated confidence limits are calculated as follows: i. The number of deaths and cases are calculated by males and females for each 5-year age-group from 45-49 to 85+ years. ii. Age & sex specific death rates are calculated for males and females for each age-group. iii. The age & sex specific death rates are multiplied by the number of cases in the OECD standard population (based on the total number of ischaemic stroke hospitalisations in the OECD). iv. The age-sex standardised death rate (ASDR) is then calculated as the sum of the age & sex specific rates multiplied by the standard population and divided by the total number of cases in the standard population. v. Upper and lower confidence intervals are presented at the 95% confidence level and are calculated by ASDR ± 1.96 * Standard Error of ASDR where the standard error is determined from a binomial distribution.
Notes	Principal Diagnosis is defined as: "The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment, as represented by a code [36]. Data are based on discharges from publicly funded acute hospitals; private hospitals are not included. Data have been analysed at hospital and hospital group level. A small number of non-acute hospitals that are not included in the hospital groups participate in HIPE for historical reasons; these hospitals have been removed from this analysis. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease. 95% confidence intervals have been produced and these should be considered when interpreting the age-standardised death rates. Where the lower limit of the 95% confidence interval is above the upper 95% confidence limit of the national rate, it can be said that the rate is statistically significantly higher than the national rate at the 95% confidence level. Similarly, where the upper limit of the 95% confidence interval is below the lower 95% confidence limit of the national rate, it can be said that the rate is statistically significantly lower than the national rate at the 95% confidence level. Note that hospitals with small numbers of cases tend to have unstable rates and wider confidence intervals. For this report rates are not displayed for hospitals with fewer than 100 denominator cases, although the data for these hospitals have been included in the calculation of the national and hospital group rates. However, some hospitals with more than 100 cases may still have unstable rates and caution should be exercised in interpreting rates with wide confidence intervals. It is important to note that transfer patterns between hospitals have the potential to influence the in-hospital mortality rates. For some conditions there can be significant volumes of patients being transferred out of hospitals and being transferred into other hospitals. The indicators presented in this report are high-level indicators and while transfers are included in the data, transfer patterns are not taken into account. A more refined analysis of transfer patterns would be required to assess the full effect of transfers on the in-hospital mortality rates.
Data Source(s)	Hospital In-Patient Enquiry (HIPE) The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie. The data presented for this indicator are based on analysis of HIPE data carried out by the Department of Health using the definitions and methodology developed by the OECD Health Care Quality Outcomes (HCQO) project. The indicator definition used in the NHQRS is based on the OECD Healthcare and Quality Outcomes (HCQO) definition (https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf) which has been developed to allow the greatest international comparability. This allows for international comparison of Ireland's performance, a core element of the NHQRS. Rates quoted here will however differ from national level reports including the National Audit of Hospital Mortality (https://www.noca.ie/audits/national-audit-of-hospital-mortality) due to definitional differences. OECD Health Statistics

Indicator	In-hospital waiting time for hip fracture surgery
Definition	The proportion of patients aged 65 years and older with a hip fracture who have surgery within two days of admission to hospital.
Years Covered	National trend: 2012 – 2021 OECD comparison: 2020 (or nearest year) Hospital & hospital group level: 2019 – 2021 (aggregated)
Classification	**Hip fracture diagnostic codes:** ICD-10-AM S72.0, S71.1, S72.2 **Hip fracture surgery codes:** ACHI blocks 1479, 1486, 1487, 1488, 1489, 1491, 1492 (Note: In the international comparison, some countries may use a different coding system)
Methodology	**Numerator:** Number of hospitalisations with a principal diagnosis of a hip fracture and who had hip fracture surgery on the day of admission, 1 day after admission or 2 days after admission in a specified year, ages 65 and older. **Denominator:** Number of hospitalisations with a principal diagnosis of a hip fracture and who had hip fracture surgery during the admission in a specified year, ages 65 and older. **Exclusions:** Elective admissions and elective re-admissions. Data have been calculated according to the methodology used by the OECD Health Care Quality Outcomes (HCQO) project. The definition of the indicator is available here https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf It should be noted that the methodology specified by the OECD for the 2020-2021 data collection defines this indicator as surgery within 2 calendar days after admission (either treatment on same day as admission, on day 1 (next day) or on day 2).
Notes	Data are based on discharges from publicly funded acute hospitals; private hospitals are not included. A small number of non-acute hospitals that are not included in the hospital groups participate in HIPE for historical reasons; these hospitals have been removed from this analysis. Each HIPE discharge record represents one episode of care and patients may have been admitted to more than one hospital with the same or different diagnoses. In the absence of a Unique Patient Identifier the records therefore facilitate analyses of hospital activity rather than incidence of disease.
Data Source(s)	Hospital In-Patient Enquiry (HIPE) The Healthcare Pricing Office (HPO) manages the HIPE system. For more information on HIPE see http://www.hpo.ie. The data presented for this indicator are based on analysis of HIPE data carried out by the Department of Health using the definitions and methodology developed by the OECD Health Care Quality Outcomes (HCQO) project. The indicator definition used in the NHQRS is based on the OECD Healthcare and Quality Outcomes (HCQO) definition (https://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Outcomes.pdf) which has been developed to allow the greatest international comparability. This allows for international comparison of Ireland's performance, a core element of the NHQRS. Rates quoted here will however differ from national level reports including the Hip Fracture Database (https://www.noca.ie/audits/irish-hip-fracture-database) due to definitional differences. OECD Health Statistics

Indicator	Caesarean section rates
Definition	The rate of caesarean section deliveries per 100 live births.
Years Covered	National trend: 2011-2020 OECD comparison: 2020 (or nearest year) Hospital & hospital group level: 2018, 2019 and 2020
Classification	Not applicable
Methodology	Data are based on the caesarean section rate per 100 live births for total maternities. **Exclusions:** • In accordance with WHO reporting guidelines, live births with birth weight <500g are excluded.
Notes	Data are based on total maternities where outcome of delivery is live birth(s) and includes total live births, i.e., single and multiple live births. It should be noted that caesarean sections rates vary considerably between single and multiple births. The rates presented in this report differ slightly from those previously published in the National Perinatal Reporting System annual reports. This is due to the exclusion of the private maternity hospitals.
Data Source(s)	National Perinatal Reporting System (NPRS) The Healthcare Pricing Office (HPO) manages the NPRS. The data presented in this report were sourced directly from the Healthcare Pricing Office and were based on the methodology used by the OECD for reporting caesarean section rates. For more information on NPRS see http://www.hpo.ie OECD Health Statistics

4

Domain 4: Supporting people to have positive experiences of healthcare

National Inpatient Experience Survey

Overview of selected indicators

There is evidence confirming links between patient experience and clinical safety and effectiveness [1, 2, 3]. Patient experience surveys are a means of promoting and achieving patient-centred care. They provide valuable insights into the strengths of hospital care as well as areas in need of focus and improvement.

The National Care Experience Programme is a tripartite partnership of HIQA, the HSE and the Department of Health www.yourexperience.ie. It oversees the development, rollout and reporting of a suite of health and social care experience surveys in Ireland. The purpose of the surveys is to learn from patients' feedback to improve the planning and delivery of healthcare.

There are currently two established surveys (the National Inpatient Experience Survey and the National Maternity Experience Survey[1]) and the programme is expanding with further surveys being progressed. The first National Nursing Home Experience Survey was conducted in 2022 with results due to be published by the end of the year. The next cycle of the NHQRS will include some indicators from this survey. Surveys related to maternity bereavement care and end of life care are also being progressed in 2022.

There are 12 indicators[2] in this domain.

The indicators for the National Inpatient Experience Survey are:

- Overall Rating of Patient Experience
- Communication in the Emergency Department
- Pain Control on the Ward
- Emotional Support Provided on the Ward
- Patient Involvement in Decision Making Regarding Care
- Communication Regarding Continuing Medicines at Patient Discharge
- Dignity and Respect while in Hospital
- Feeling at risk of catching COVID-19
- Communication with staff wearing Personal Protective Equipment
- Answers to questions regarding COVID-19
- Help to keep in touch with family
- Emotional support regarding COVID-19 worries and fears

[1] The 2020 NHQRS report included data from the National Maternity Experience Survey. There is no new National Maternity Experience Survey data for inclusion in this cycle of the NHQRS. It is anticipated that the next maternity experience survey will be conducted in 2024 asking about experience of care in 2023.

[2] See Metadata Sheets at the end of this Domain for detailed definitions and methodology for the calculation of the indicators.

National Inpatient Experience Survey

Definition

The National Inpatient Experience Survey is a national survey that asks patients about their recent experience in hospital. The purpose of the survey is to learn from patients' feedback to improve the planning and delivery of healthcare. The survey is part of the broader National Care Experience Programme to help improve the quality and safety of healthcare services in Ireland.

The first survey was conducted in 2017. Due to the impact of the COVID-19 pandemic, the 2020 cycle of the National Inpatient Experience Survey which was due to be conducted in May 2020 did not go ahead. The 2021 National Inpatient Experience Survey was unique as it took place during a time of unprecedented disruption and restrictions on the provision of healthcare due to the COVID-19 pandemic with additional 'care during the pandemic' questions included. Comparison with previous survey results should be made with caution.

All adult patients (16 years old or older[3]) discharged during September[4] 2021 who spent a minimum of one night in an acute public hospital were invited to complete the survey and provided with a letter and information leaflet on discharge. Patients receiving maternity, psychiatric and paediatric services were not included in the 2021 survey.

In May 2022, national and thematic reports were published on www.yourexperience.ie and hospital-level results were published on the survey dashboard and Tableau[5]. These identify areas of good experience and highlight areas for improvement. The HSE has also published their response and quality improvements plans in response to the findings of the National Patient Experience Survey, which are available on https://yourexperience.ie/wp-content/uploads/2022/05/HSE-QIP-2021.pdf

Rationale for the inclusion of indicators

Seven indicators from the 61 survey questions were selected in 2017 for NHQRS inclusion using the following 5 principles:

1) Patient-centeredness.
2) International comparability.
3) Importance of measuring information unique to the NIES dataset.
4) The purpose of the NHQRS in driving improvements in the health service in specific areas deemed valuable.
5) Importance in capturing the patient's journey of care.

The seven questions include at least one question from each segment of the patient journey though hospital: admission to hospital, care on the ward, examination, diagnosis and treatment, discharge from hospital, and other aspects of care, as well as the overall patient rating of their experience.

The National Inpatient Experience Survey 2021 presented the first opportunity for the provision of feedback on care experiences during a pandemic in Ireland. Given the importance of the patient's perspective at this unprecedented time, the five new questions on provision of care during the pandemic have been included as indicators in this cycle of the NHQRS. This will be kept under review for future reports.

International comparability

Measuring patient reported indicators of their experiences of care is increasingly an indicator for the quality of a healthcare system. Jurisdictions internationally also conduct patient experience surveys. The results from international survey reports from accessible jurisdictions (England and New Zealand) who used similar/aligned questions[6] are summarised below. The limitations of making international comparisons of patient experience survey results should be noted. The methodologies in other jurisdictions in terms of sampling, frequency and timeliness, survey delivery method, analysis and other aspects differ. The context and culture within which healthcare is delivered may also differ. As such, the results may not be affected simply by the quality or experience of care. Caution is advised when comparing this information.

[3] In 2018 the age threshold for inclusion was lowered from 18 years of age to 16 years of age to reflect the age of consent for medical treatment and the age of digital consent under GDPR legislation.
[4] Due to the cyber-attack on the HSE IT systems in May 2021, the 2021 survey took place in September rather than the normal survey month of May.
[5] The National Care Experience Programme dashboard is an online resource for health and social care service providers that participate in NCEP surveys to view their survey results.
[6] See metadata for further details on international questions.

National Inpatient Experience Commentary

- Of those who were eligible to participate in the survey, 42% responded (10,743 people). This is a high response rate relative to other patient experience surveys conducted abroad. In 2019, the response rate in Ireland was 46%.
- Eighty-three percent of respondents indicated a good or very good overall experience of their hospital stay in 2021. This is the similar to what was observed in the 2019 survey (84%) and is comparable to other patient experience surveys internationally.
- Ireland's inpatient experience survey results compared favourably with international counterparts regarding pain control on the ward and dignity and respect shown to patients in hospital.
- Other countries scored higher than Ireland regarding the emotional support provided on the ward and the level of understanding patients had about their medicines at discharge.
- In relation to care during the pandemic most patients said that they did not feel they were at risk of catching COVID-19 while in hospital, and that they were always able to understand staff when they were wearing face masks and visors. While around two in three people said that they had no worries or fears about COVID-19 and two in five said that they did not need help to keep in touch with family during their stay in hospital, a number of participants said that they could not find a member of staff to talk to if they had worries or fears about COVID-19 and did not receive help to keep in touch with family.[7]
- In the 2021 NIES, it appears that patients who were admitted for planned care to smaller hospitals and specialty hospitals reported higher ratings for their care experience than those discharged from larger hospitals.
- For the 2021 NIES results, overall, there was little variation between Hospital Group averages for each of the indicators.

Table 4.1: Summary of Inpatient Experience Survey Measures as Reported Internationally

	Ireland 2021	England 2020	New Zealand 2021
Response Rate	42%	46%	-
Overall Rating of Experience (% who gave rating between 7 and 10 - good or very good)	83%	85%	-
Pain Control on the Ward - "Do you think the hospital staff did everything they could to help control your pain?" (% yes, definitely)	79%[1]	80%	85%
Emotional Support Provided on the Ward - "Did you find someone on the hospital staff to talk to about your worries and fears?" (% yes, definitely)	46%[2]	62%	-
Patient Involvement in Decision Making Regarding Care- "Were you involved as much as you wanted to be in decisions about your care and treatment?" (% yes, definitely)	62%[3]	37%	77%
Communication Regarding Continuing Medicines at Patient Discharge - "Did a member of staff explain the purpose of medicines you were to take at home in a way you could understand?" (% yes, completely)	62%[4]	64%	86%
Dignity and Respect while in Hospital - "Overall, did you feel you were treated with dignity and respect while you were in hospital?" (% yes, always)	83%	85%	-

[1] Pain control on the ward response type "yes definitely" for Ireland and "yes, always" for England and New Zealand. To align with the methodology used in England and New Zealand, the 'I was never in any pain' responses are excluded when calculating the percentage in this table. This differs to the approach in Figure 4.3 which provides a percentage breakdown for all response types.

[2] Emotional support on the ward response type "yes, definitely" for Ireland and "yes, always" for England. To align with the methodology used in England, the 'I had no worries or fears' responses are excluded when calculating the percentage in this table. This differs to the approach in Figure 4.4 which provides a percentage breakdown for all response types.

[3] Patient Involvement in decision making regarding care response type "yes, definitely" for Ireland, "a great deal" for England and "yes always" for New Zealand. The percentage reported in this table is the same as in Figure 4.5.

[4] Communication Regarding Continuing Medicines at Patient Discharge response type "yes completely" for Ireland, positive response on provision of "an explanation of the purpose of the medicine" for England and "yes, definitely" for New Zealand. To align with the methodology used in England and New Zealand, the 'I did not need an explanation' responses are excluded when calculating the percentage in this table. This differs to the approach in Figure 4.6 which provides a percentage breakdown for all response types.

Sources:
England: The results for the 2020 Adult Inpatient Survey conducted in England are available here https://www.cqc.org.uk/publications/surveys/adult-inpatient-survey-2020

New Zealand: The national results for the November 2021 Adult Inpatient Survey in New Zealand are available as interactive charts from https://www.hqsc.govt.nz/our-data/patient-experience/hospital-inpatient-experience-explorer/

Note: Only questions where an international comparison was available are included in the table.

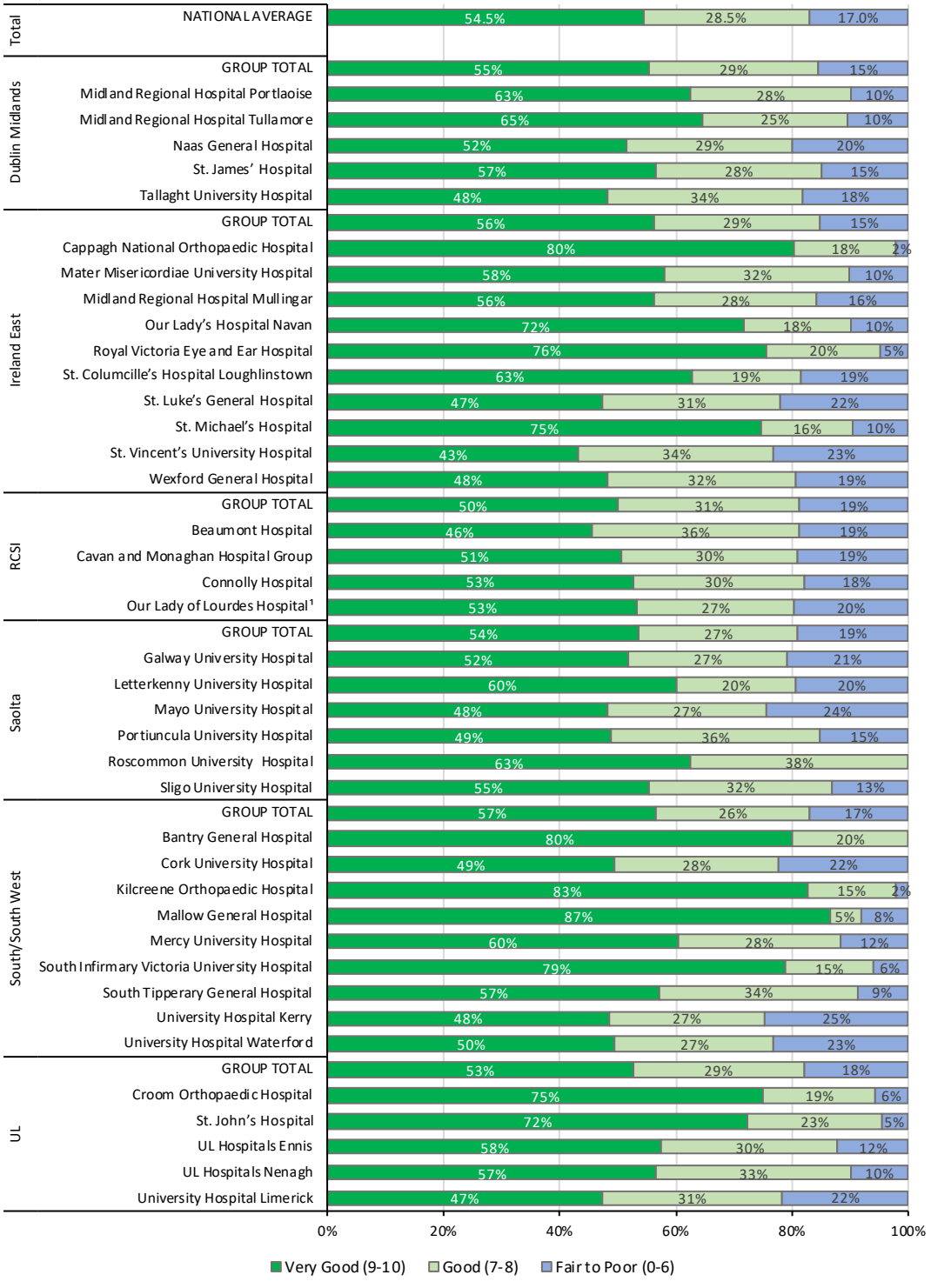
[7] A survey asking people about their inpatient experience during the COVID-19 pandemic was undertaken in England in 2020 (results available here https://www.cqc.org.uk/publications/themed-work/inpatient-experience-during-coronavirus-covid-19-pandemic). Although there is some alignment with questions across the Irish Inpatient Experience Survey and the COVID-19 survey in England, there are a number of methodological differences between the two surveys, therefore, international comparisons have not been included.

Overall Inpatient Experience Rating

Definition

Hospital, hospital group and national patient reported overall rating of hospital experience on a scale of 1 to 10.

Figure 4.1: Inpatient Reported Overall Rating of Hospital Experience by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate.

Source: The National Inpatient Experience Survey, 2021

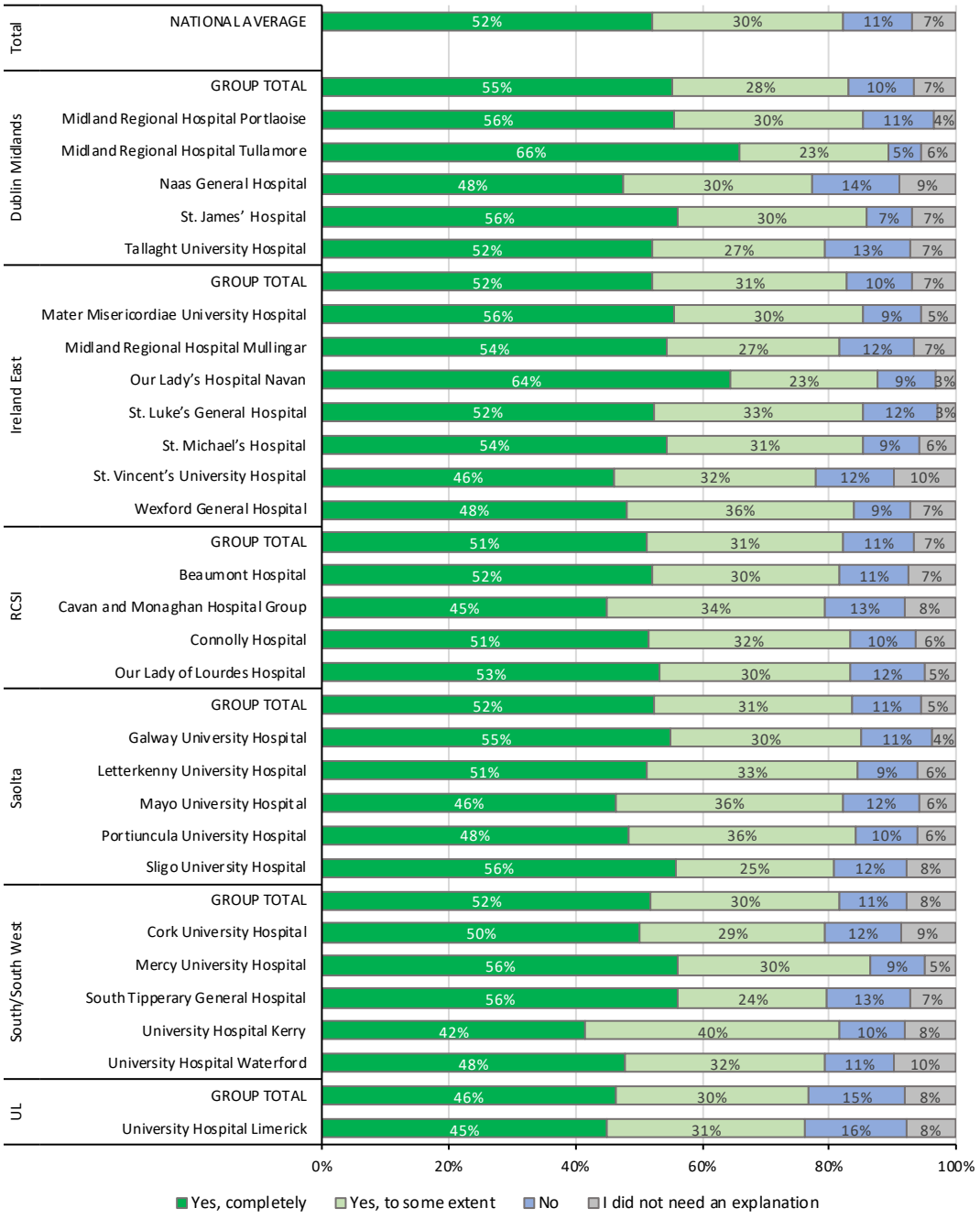
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Admission to Hospital: Communication in the Emergency Department

Definition

The percentage responses by hospitals, hospital groups and nationally to the question "While you were in the Emergency Department, did a doctor or nurse explain your condition in a way you could understand?"

Figure 4.2: Communication in the Emergency Department: Inpatient Reported Responses by Hospital and Hospital Group, 2021



Source: The National Inpatient Experience Survey, 2021

Note:

i) The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

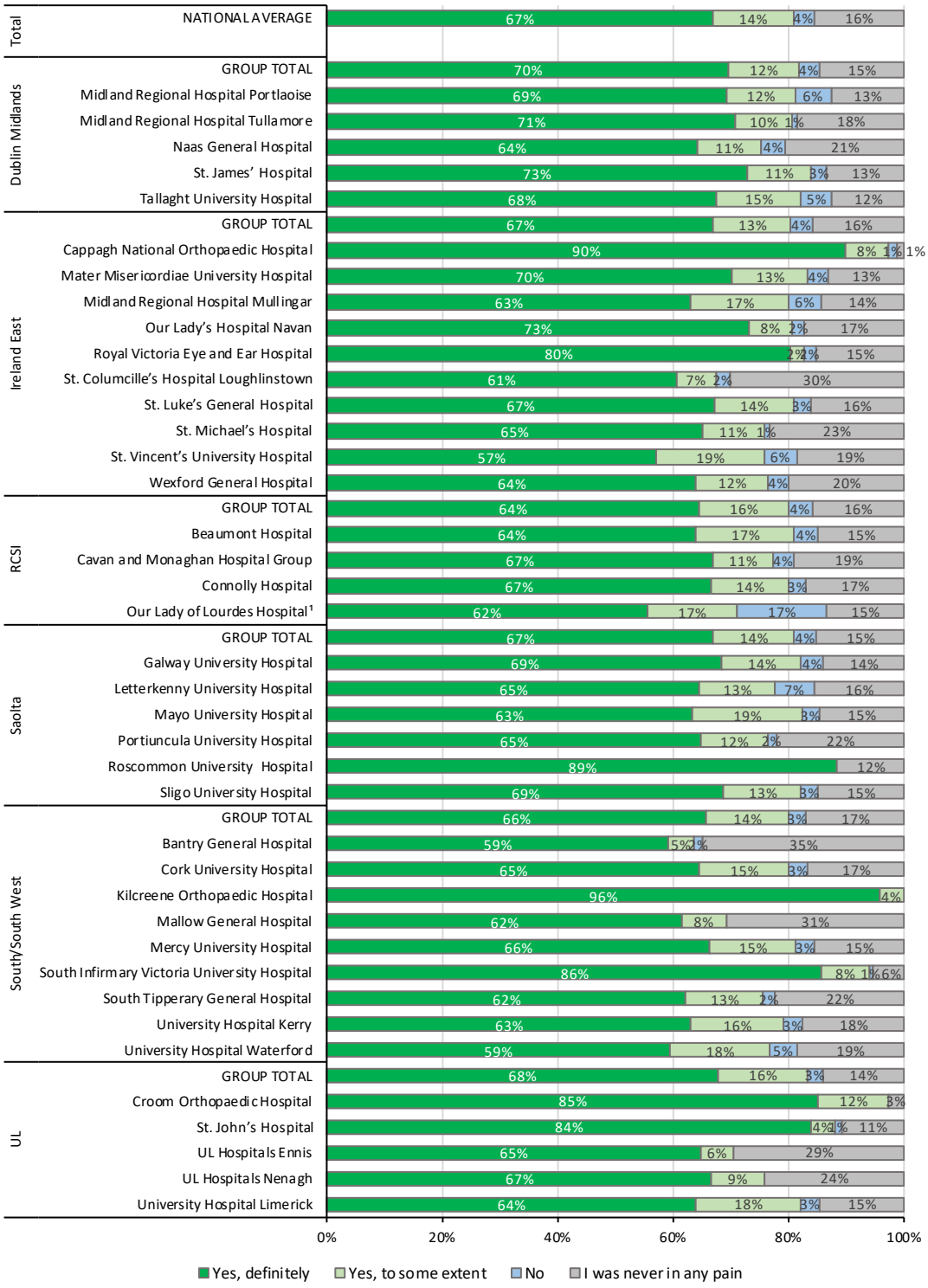
ii) Results for hospitals which do not have an Emergency Department are not reported here. However, they do have a small number of responses to this question e.g., a respondent admitted through an ED to a different hospital and then transferred responds about their original admission. These responses are included in the National Average and the Hospital Group Totals.

Care on the Ward: Pain Control on the Ward

Definition

The percentage responses by hospital, hospital group and nationally to the question: "Do you think the hospital staff did everything they could to help control your pain?"

Figure 4.3: Pain Control on the Ward: Inpatient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate.

Source: The National Inpatient Experience Survey, 2021

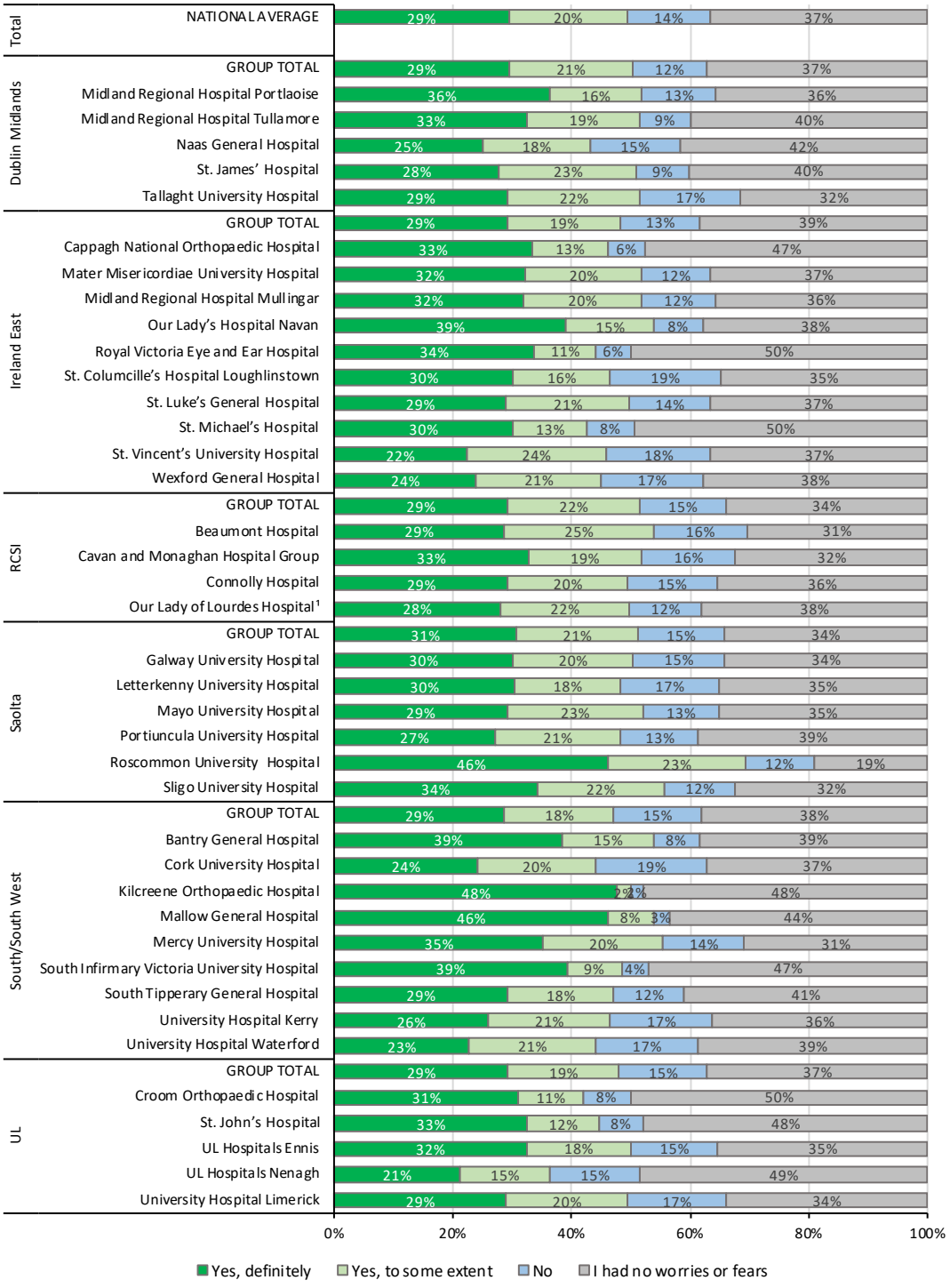
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Care on the Ward: Emotional Support Provided on the Ward

Definition

The percentage responses by hospital, hospital group and nationally to the question: "Did you find someone on the hospital staff to talk to about your worries and fears?"

Figure 4.4: Emotional Support the Ward: Inpatient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate.

Source: The National Inpatient Experience Survey, 2021

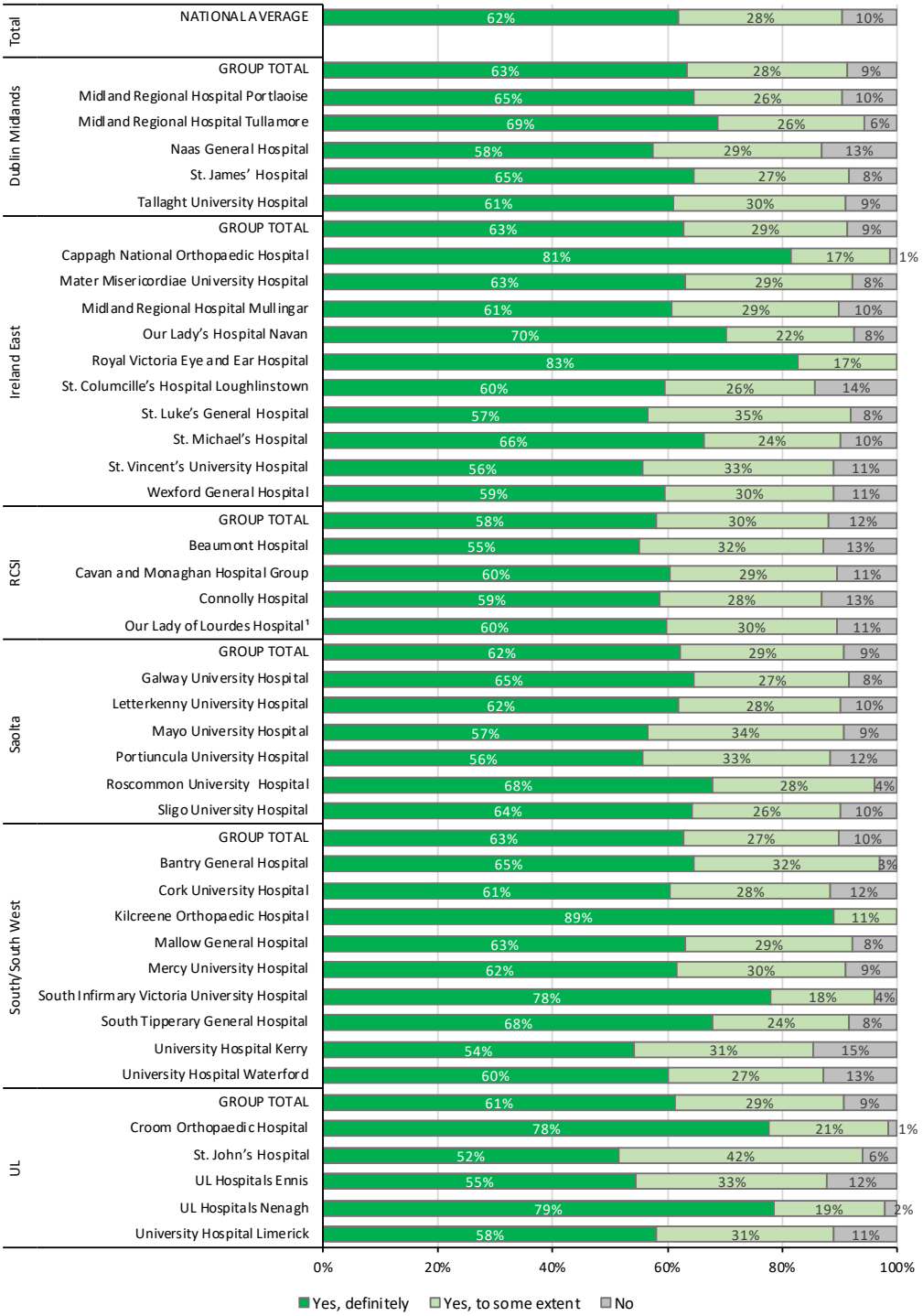
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Examination, Diagnosis and Treatment: Patient Involvement in Decision Making Regarding Care

Definition

The percentage responses by hospital, hospital group and nationally to the question: "Were you involved as much as you wanted to be in decisions about your care?"

Figure 4.5: Patient Involvement in Decision Making Regarding Care: Inpatient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate.

Source: The National Inpatient Experience Survey, 2021

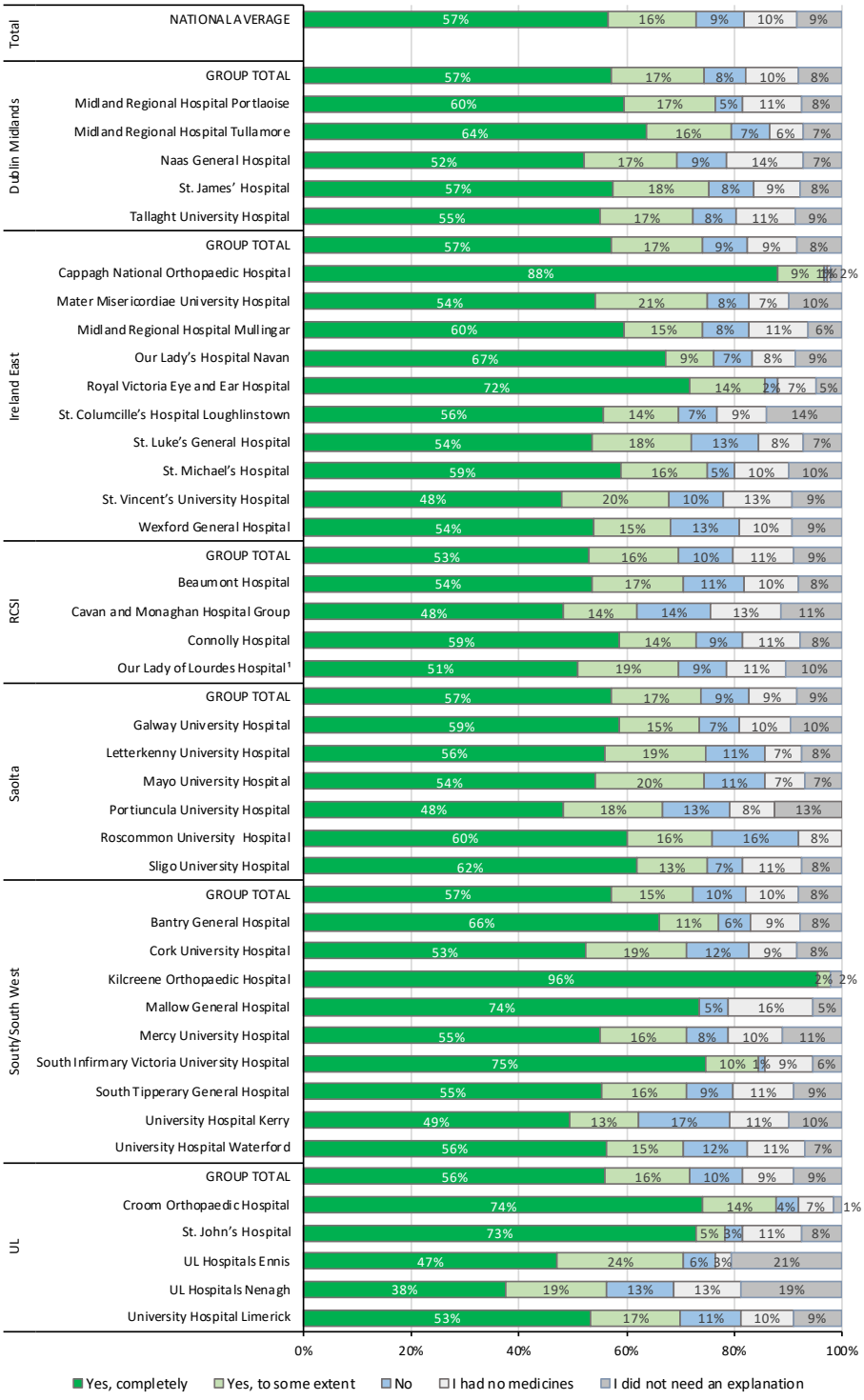
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Discharge or Transfer: Communication Regarding Continuing Medicines at Patient Discharge

Definition

The percentage responses by hospital, hospital group and nationally to the question: "Did a member of staff explain the purpose of medicines you were to take at home in a way you could understand?"

Figure 4.6: Communication Regarding Continuing Medicines at Inpatient Discharge: Patient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate

Source: The National Inpatient Experience Survey, 2021

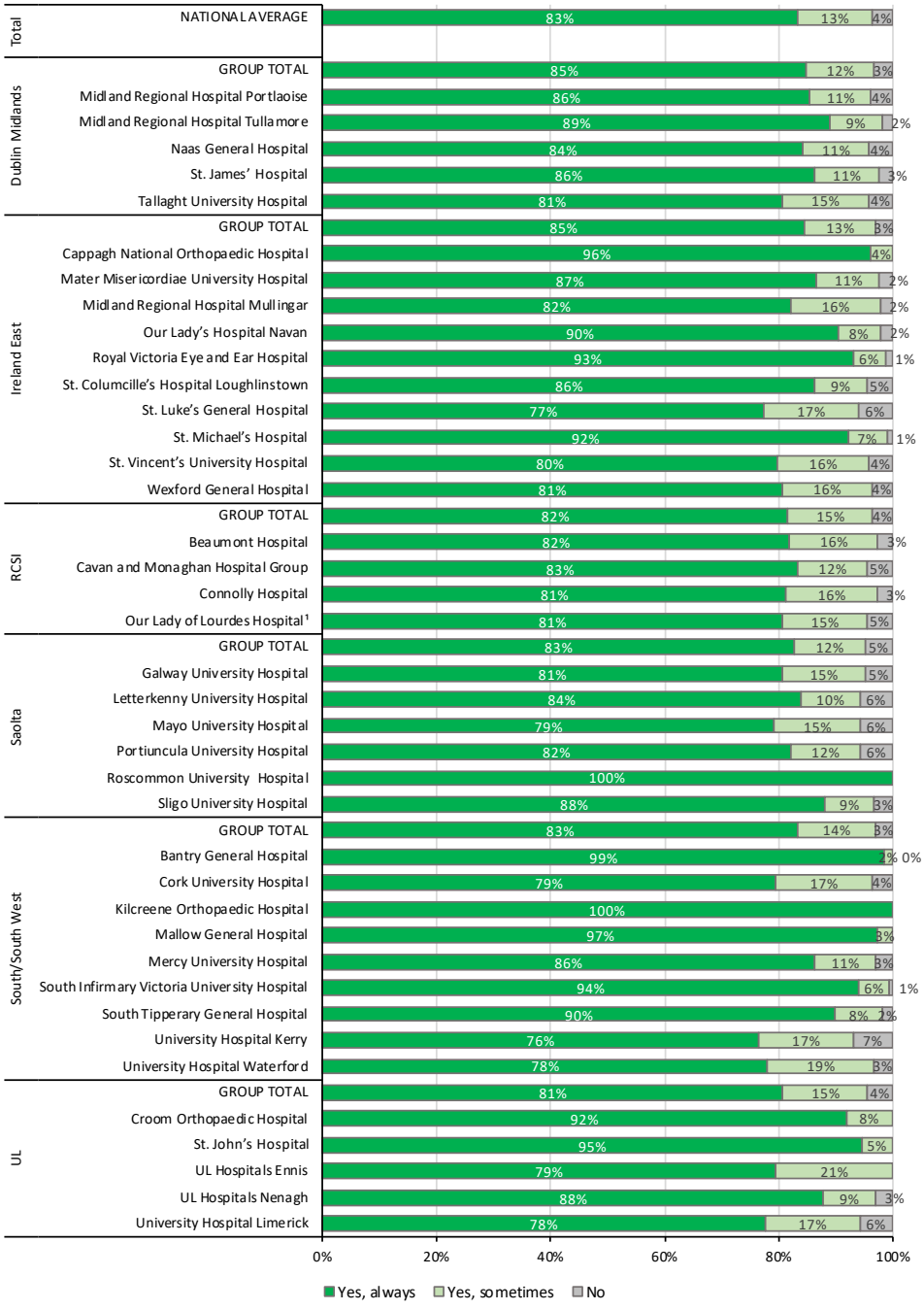
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Other Aspects of Care: Dignity and Respect while in Hospital

Definition

The average score by hospital, hospital group and nationally to the question: "Overall, did you feel you were treated with respect and dignity while you were in hospital?"

Figure 4.7: Dignity and Respect while in Hospital: Inpatient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate

Source: The National Inpatient Experience Survey, 2021

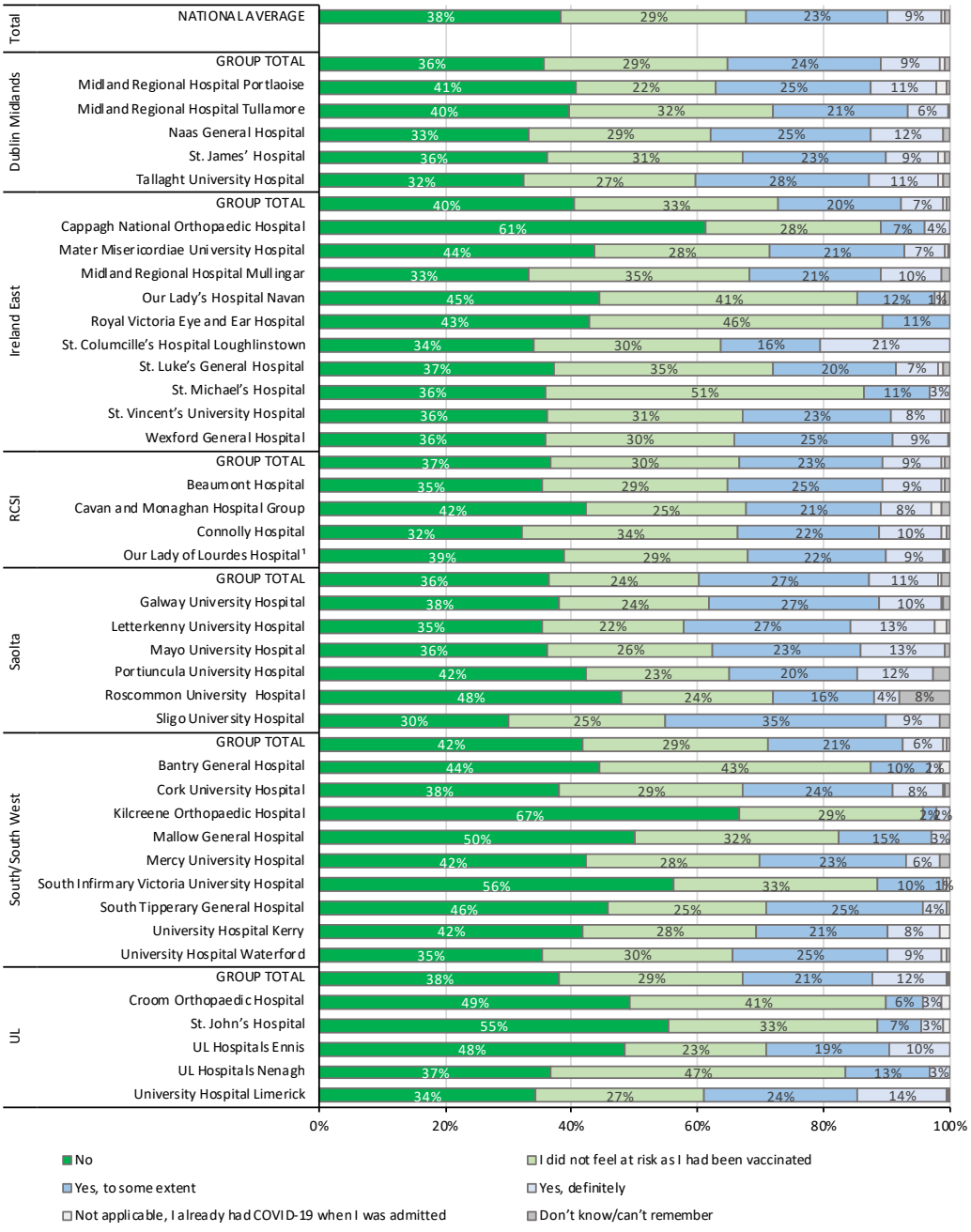
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Care during the pandemic: Feeling at risk of catching COVID-19

Definition

The average score by hospital, hospital group and nationally to the question: "While you were in hospital, did you feel you were at risk of catching COVID-19?"

Figure 4.8: Feeling at Risk of Catching COVID-19: Inpatient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate

Source: The National Inpatient Experience Survey, 2021

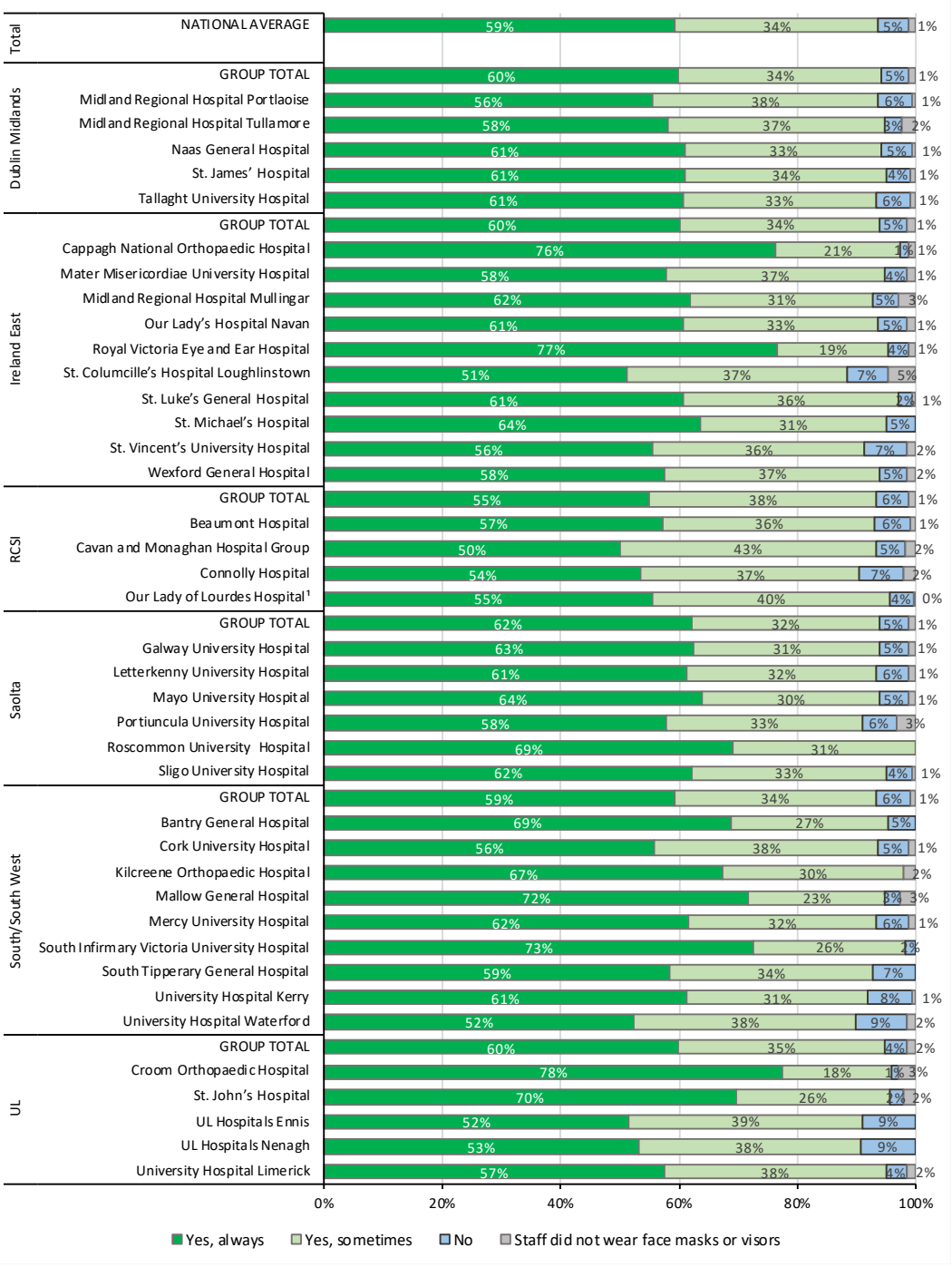
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Care during the pandemic: Communication when staff wearing Personal Protective Equipment

Definition

The average score by hospital, hospital group and nationally to the question: "Were you able to understand staff when they were talking to you wearing face masks and visors?"

Figure 4.9: Communication while Wearing Personal Protective Equipment: Inpatient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate

Source: The National Inpatient Experience Survey, 2021

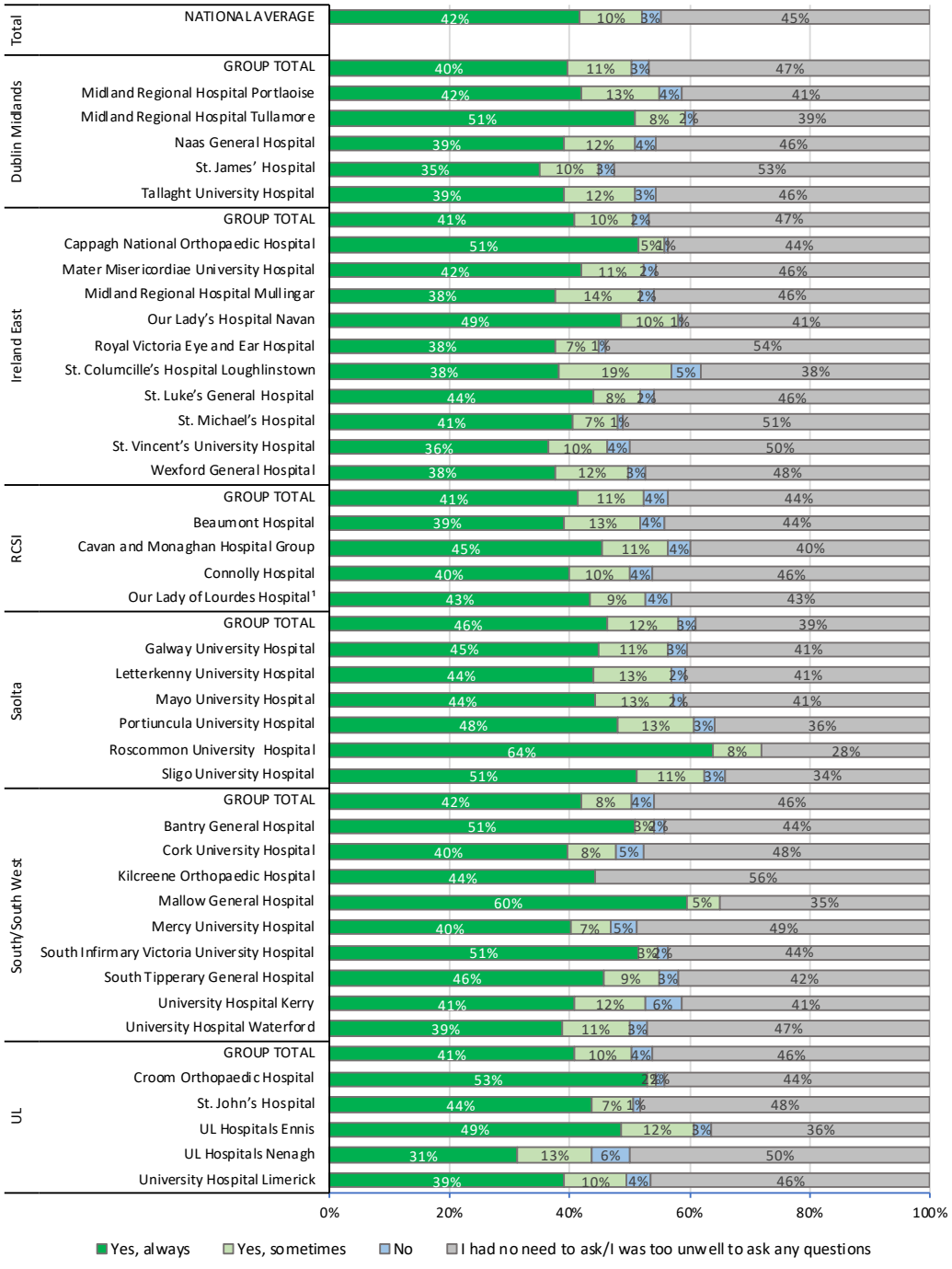
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Care during the pandemic: Communication regarding COVID-19

Definition

The average score by hospital, hospital group and nationally to the question: "When you had questions about COVID-19, did you get answers that you could understand?"

Figure 4.10: Answers to Questions about COVID-19: Inpatient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate

Source: The National Inpatient Experience Survey, 2021

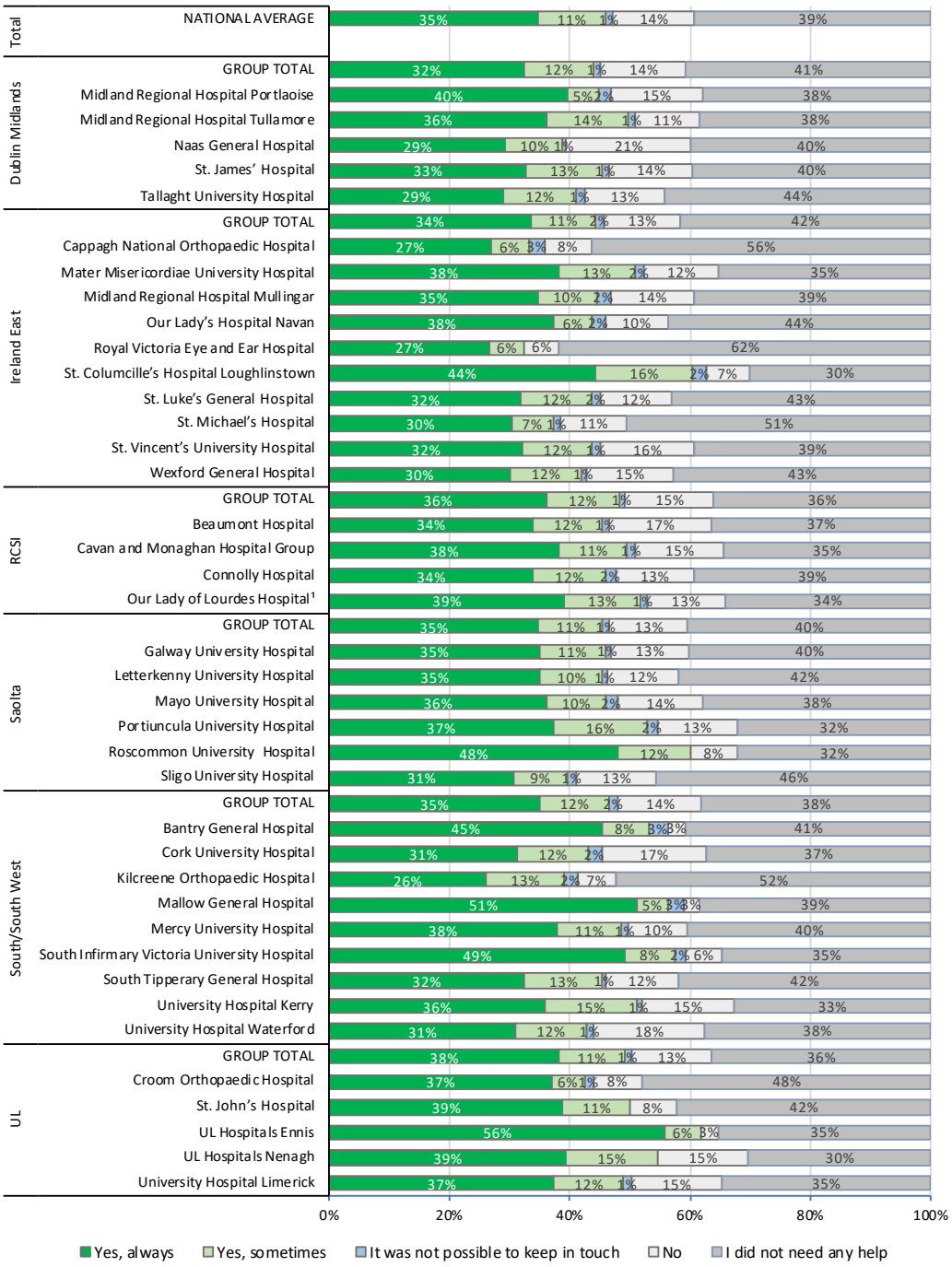
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Care during the pandemic: Keeping in touch with family

Definition

The average score by hospital, hospital group and nationally to the question: "Did staff help you keep in touch with your family or someone else close to you during your stay in hospital?"

Figure 4.11: Help to Keep in Touch: Inpatient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate

Source: The National Inpatient Experience Survey, 2021

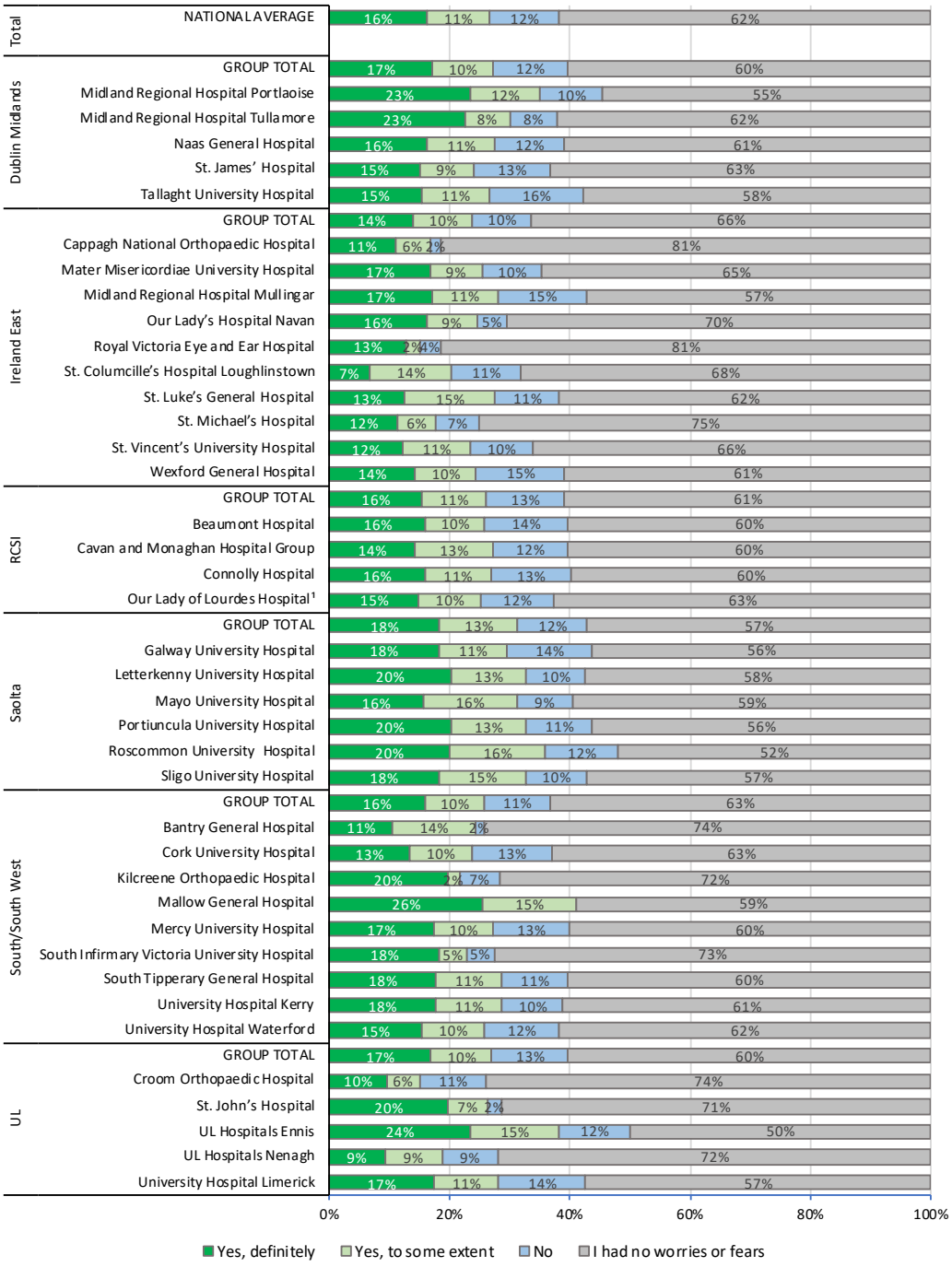
Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

Care during the pandemic: Emotional support regarding COVID-19 worries and fears

Definition

The average score by hospital, hospital group and nationally to the question: "If you had worries or fears about COVID-19 while you were in hospital, did you find someone on the hospital staff to talk to?"

Figure 4.12: Worries and Fears about COVID-19: Inpatient Reported Responses by Hospital and Hospital Group, 2021



[1] Results for Our Lady of Lourdes Hospital in Drogheda and Louth County Hospital in Dundalk are combined to ensure a sufficient response rate

Source: The National Inpatient Experience Survey, 2021

Note: The data provided are raw percentage responses to the question. The total number of responses, the response rate and the patient profile (number, age and balance between emergency/elective admissions) would impact on the responses for a particular hospital.

References

[1] C. Doyle, L. Lennox and D. Bell, A systematic review of evidence on the links between patient experience and clinical safety and effectiveness, vol. 3:e001570, BMJ Open, 2013.

[2] T. Isaac, A. M. Zaslavsky, P. D. Cleary and B. E. Landon, "The Relationship between Patients' Perception of Care and Measures of Hospital Quality and Safety," *HSR*, vol. 45, no. 4, pp. 1024-1040, 2010.

[3] R. Lawton, J. O'Hara, L. Sherard, C. Reynolds, K. Cocks, G. Armitage and J. Wright, "Can staff and patient perspectives on hospital safety predict harm-free care? An analysis of staff and patient survey data and routinely collected outcomes," *BMJ Quality & Safety*, vol. 25, p. 369:376, 2015.

Domain 4 indicators metadata

Indicator	Overall Rating of Patient Experience
Definition	Hospital, Hospital Group and National patient reported overall rating of hospital experience on a scale of 1 to 10.
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. The question regarding the patient's overall experience of their hospital stay asked respondents to give a score of 1 to 10. These scores were then categorised into "very good" (scores of 9 or 10), "good" (scores of 7 or 8), or "fair to poor" (scores of 1 to 6). The percentages of responses given under each category were then described. To align the Irish survey outputs to those of other countries, the percentage of survey participants who gave a rating between 7 and 10 responded (good or very good) were used. This was compared with the responses from England who gave a rating between 7-10. • Question used in England's survey: "Overall, how was your experience while you were in the hospital?" (0 – I had a very poor experience to 10 – I had a very good experience)
Notes	Each jurisdiction differs in the method by which they disseminate and collect information including the frequency, format in which they collect information and their selection criteria for patient respondents according to age cohorts. Differences in methodology may impact upon the results generated in each survey. Caution is advised when comparing this information.
Data Source(s)	National Inpatient Experience Survey

Indicator	Admission to Hospital: Communication in Emergency Department
Definition	The percentage responses by hospital, hospital group and nationally to the question: "While you were in the Emergency Department, did a doctor or nurse explain your condition in a way you could understand?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 6 answer selections. The percentage of responses for each available answer choice for each question were then described.
Data Source(s)	National Inpatient Experience Survey

Indicator	Care on the Ward: Pain Control on the Ward
Definition	The percentage responses by hospital, hospital group and nationally to the question: "Do you think the hospital staff did everything they could to help control your pain?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 6 answer selections. The percentage of responses for each available answer choice for each question were then described. To compare the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" was used. This was compared with the "yes, always" responses from England and New Zealand. • Question used in England's survey: "Do you think the hospital staff did everything they could to help control your pain?" (Yes always, Sometimes, No, never) • Question used in New Zealand's survey: "During this hospital visit, did you receive pain relief that met your needs?" (Yes always, Sometimes, No)
Notes	Each jurisdiction differs in the method by which they disseminate and collect information including the frequency, format in which they collect information and their selection criteria for patient respondents according to age cohorts. Differences in methodology may impact upon the results generated in each survey. Caution is advised when comparing this information.
Data Source(s)	National Inpatient Experience Survey

Indicator	Care on the Ward: Emotional Support Provided on the Ward
Definition	The percentage responses by hospital, hospital group and nationally to the question: "Did you find someone on the hospital staff to talk to about your worries and fears?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 6 answer selections. The percentage of responses for each available answer choice for each question were then described. To compare the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" was used. This was compared with the "yes, always" responses from England. • Question used in England's survey: "Did you feel able to talk to members of hospital staff about your worries and fears?" (Yes always, Sometimes, No, never)
Notes	Each jurisdiction differs in the method by which they disseminate and collect information including the frequency, format in which they collect information and their selection criteria for patient respondents according to age cohorts. Differences in methodology may impact upon the results generated in each survey. Caution is advised when comparing this information.
Data Source(s)	National Inpatient Experience Survey

Indicator	Examinations, Diagnosis and Treatment: Patient Involvement in Decision Making Regarding Care
Definition	The percentage responses by hospital, hospital group and nationally to the question: "Were you involved as much as you wanted to be in decisions about your care and treatment?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 6 answer selections. The percentage of responses for each available answer choice for each question were then described. To compare the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" was used. This was compared with the "a great deal" responses from England and "yes, always" responses from New Zealand. • Question used in England's survey: "To what extent did staff looking after you involve you in decisions about your care and treatment?" (A great deal, A fair amount, Not very much, Not at all) • Question used in New Zealand's survey: "Were you involved as much as you wanted to be in making decisions about your treatment and care?" (Yes always, Sometimes, No)
Notes	Each jurisdiction differs in the method by which they disseminate and collect information including the frequency, format in which they collect information and their selection criteria for patient respondents according to age cohorts. Differences in methodology may impact upon the results generated in each survey. Caution is advised when comparing this information.
Data Source(s)	National Inpatient Experience Survey

Indicator	Discharge or Transfer: Communication Regarding Continuing Medicines at Patient Discharge
Definition	The percentage responses by hospital, hospital group and nationally to the question: "Did a member of staff explain the purpose of medicines you were to take at home in a way you could understand?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 6 answer selections. The percentage of responses for each available answer choice for each question were then described. To compare the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" was used. This was compared with the responses from England that indicated they had been given "an explanation of the purpose of the medicine" and the "yes, definitely" responses from New Zealand.

Methodology contd.	• Question used in England's survey: "Thinking about any medicine you were to take at home, were you given any of the following? (An explanation of the purpose of the medicine, An explanation of the side effects, An explanation of how to take the medicine, Written information about your medicine, I was given medicine but no information). Respondents could select all applicable response options. • Question used in New Zealand's survey: "Were you told what the medicine (or prescription for medicine) you left the hospital with was for?" (Yes definitely, Somewhat, No)
Notes	Each jurisdiction differs in the method by which they disseminate and collect information including the frequency, format in which they collect information and their selection criteria for patient respondents according to age cohorts. Differences in methodology may impact upon the results generated in each survey. Caution is advised when comparing this information.
Data Source(s)	National Inpatient Experience Survey

Indicator	**Other Aspects of Care: Dignity and Respect while in Hospital**
Definition	The percentage responses by hospital, hospital group and nationally to the question: "Overall, did you feel you were treated with dignity and respect while you were in hospital?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 6 answer selections. The percentage of responses for each available answer choice for each question were then described. To compare the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes always" was used. This was compared with the "yes, always" responses from England • Question used in England's survey: "Overall, did you feel you were treated with respect and dignity while you were in the hospital? (Yes, always, Sometimes, No, never)
Data Source(s)	National Inpatient Experience Survey

Indicator	**Care during the pandemic: Feeling at risk of catching COVID-19**
Definition	The average score by hospital, hospital group and nationally to the question: "While you were in hospital, did you feel you were at risk of catching COVID-19?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 6 answer selections. The percentage of responses for each available answer choice for each question were then described.
Data Source(s)	National Inpatient Experience Survey

Indicator	**Care during the pandemic: Communication with staff wearing Personal Protective Equipment**
Definition	The average score by hospital, hospital group and nationally to the question: "Were you able to understand staff when they were talking to you wearing face masks and visors?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 5 answer selections. The percentage of responses for each available answer choice for each question were then described.
Data Source(s)	National Inpatient Experience Survey

Indicator	Care during the pandemic: Answers to questions regarding COVID-19
Definition	The average score by hospital, hospital group and nationally to the question: "When you had questions about COVID-19, did you get answers that you could understand?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 6 answer selections. The percentage of responses for each available answer choice for each question were then described.
Data Source(s)	National Inpatient Experience Survey

Indicator	Care during the pandemic: Keeping in touch with family and friends
Definition	The average score by hospital, hospital group and nationally to the question: "Did staff help you keep in touch with your family or someone else close to you during your stay in hospital?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 5 answer selections. The percentage of responses for each available answer choice for each question were then described.
Data Source(s)	National Inpatient Experience Survey

Indicator	Care during the pandemic: Emotional support regarding COVID-19 worries and fears
Definition	The average score by hospital, hospital group and nationally to the question: "If you had worries or fears about COVID-19 while you were in hospital, did you find someone on the hospital staff to talk to?"
Years Covered	2021
Classification	Not applicable
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Inpatient Experience Survey which is available at on https://yourexperience.ie/wp-content/uploads/2022/07/Technical-report-2021.pdf. Detailed information regarding survey and sample design is available in the Technical Report. Each question, with the exception of the overall experience rating, had 3 to 6 answer selections. The percentage of responses for each available answer choice for each question were then described.
Data Source(s)	National Inpatient Experience Survey

5

Domain 5: Treating and caring for people in a safe environment

Overview of selected indicators

There are 6 indicators[1] in this domain in the following 3 areas:

- Healthcare associated infections (HCAIs)
- Antibiotic consumption
- Medication safety

Healthcare associated infections

Healthcare associated infections (HCAIs) are infections people contract while they are being cared for and / or receiving treatment for another condition in a healthcare setting. This is most frequently while in hospital, but can also occur in outpatient clinics, nursing homes and other healthcare settings.

Most common HCAIs only cause minor illness. However, some can cause serious illnesses, such as bloodstream infections. Effective infection prevention and control programmes lead to more than a 30% reduction in HCAI rates [1]. The number of patients who acquire HCAIs is recognised as a measure of the quality and safety of care provided and therefore rates of certain HCAIs are included in this report.

The indicators for HCAIs are:

- *Staphylococcus aureus* bloodstream infection rates:methicillin resistant *Staphylococcus aureus* (MRSA) bloodstream infection rates and methicillin susceptible *Staphylococcus aureus* (MSSA) bloodstream infection rates
- *Clostridioides difficile (C. difficile)* infection rates
- Carbapenemase-producing *Enterobacterales* detections (colonisation and infection)

Antibiotic consumption

Since the 1940s, antimicrobials (medicines specifically used to combat infections caused by microorganisms) have substantially reduced mortality from infectious diseases and have provided protection against infectious complications of many modern medical practices including surgery, neonatal care and cancer treatment. Many advances in modern medicine could not be safely carried out without effective antimicrobial cover.

When an antimicrobial that previously worked to treat an infection or disease caused by a microorganism stops working or does not work as well as it did before, this is called antimicrobial resistance. Antimicrobial resistance happens naturally over time. However, the rate of antimicrobial resistance is increasing as there are very large amounts of antimicrobials being used across the world in humans, animals, and the environment.

Consequently, many common infections are becoming more difficult to treat and microorganisms that are resistant to many antibiotics and other antimicrobials, so-called 'superbugs', are emerging.

In recognition of the need for all countries to develop a plan to tackle antimicrobial resistance (AMR) the World Health Organization published its *Global Action Plan on Antimicrobial Resistance* in 2015. This plan aims to ensure the development and implementation of multifaceted interventions which will safeguard against inappropriate prescribing, dispensing and consumption of medicines, while simultaneously promoting rational use in humans and animals that are expected to benefit from treatment. The European Commission published *A European One Health Action Plan against Antimicrobial Resistance (AMR)* in 2017.

In ongoing fulfilment of Ireland's commitment to the Global and EU Action Plans, *Ireland's second One Health National Action Plan on Antimicrobial Resistance 2021-2025*, known as iNAP2, was published jointly by the Department of Health and the Department of Agriculture, Food and the Marine in November 2021. As with the first National Action Plan (2017-2020), known as iNAP1, this plan was developed jointly in recognition of the requirement for a One Health approach to tackling AMR. iNAP2 provides a road map to target HCAIs and antimicrobial resistance across the human, veterinary and environmental sectors. This multi-sectoral approach is known as One Health. Strategic Objective 2 focus on surveillance as part of the overall response to AMR.

1 See Metadata Sheets at the end of this Domain for detailed definitions and methodology for the calculation of the indicators.

iNAP2 builds on the progress made under iNAP1 and includes learning from both the CPE and COVID-19 Public Health Emergencies and the Report of the European Commission / European Centre for Disease Prevention and Control One Health Country Monitoring Visit on AMR to Ireland (March 2020). In line with WHO Strategic Objective 2: 'Enhance surveillance of antimicrobial resistance and antimicrobial use', iNAP2 includes 15 Human Health actions under this objective.

Surveillance and reporting of antibiotic use plays a key role in encouraging prudent use of these agents and the NHQRS includes two indicators of antibiotic use in Ireland:

- Antibiotic consumption in the community
- Antibiotic consumption in public acute hospitals

Medication safety

According to the World Health Organisation, unsafe medication practices and medication errors are a leading cause of injury and avoidable harm in health care systems across the world. The indicator for medication safety used in the NHQRS is:

- Chronic benzodiazepine usage in the community in people aged 65 and over

Staphylococcus aureus, methicillin resistant *Staphylococcus aureus* (MRSA) bloodstream infection and methicillin susceptible *Staphylococcus aureus* (MSSA) bloodstream infection and rates

Definition

Rate of *Staphylococcus aureus* (*S. aureus*), methicillin resistant *S. aureus* (MRSA) bloodstream infections and methicillin-susceptible staphylococcus aureus (MSSA) bloodstream infections in acute hospitals per 1,000 bed days used.

Description

Depending on its susceptibility to methicillin *S. aureus* can be known as MRSA, which is a type of *S. aureus* that has become resistant to methicillin, as well as all other penicillins, or MSSA, the type which is susceptible to methicillin. For MRSA none of the penicillin class of antibiotics are effective in treating MRSA infections. MRSA may also be resistant to other classes of antibiotics. This makes infection caused by MRSA more difficult to treat.

Healthcare interventions like intravenous catheters increase the risk of developing *S. aureus* bloodstream infection and many of these infections can be prevented. In some people who acquire *S. aureus* the bacteria can cause serious infections, such as bloodstream infection (sometimes called septicaemia). For these reasons *S. aureus* bloodstream infection rates are sometimes used as a quality indicator for HCAIs.

In recent years MRSA bloodstream infection has declined as a proportion of total *S. aureus* bloodstream infections. The rate of MRSA bloodstream infection has also declined in absolute terms. There is currently no consensus on the specific causes of this decline. On the other hand, the rate of MSSA bloodstream infection has increased.

Under the case definition for the European Antimicrobial Resistance Surveillance Network (EARS-Net), data are collected on the first bloodstream isolate of *S. aureus* per person per year.

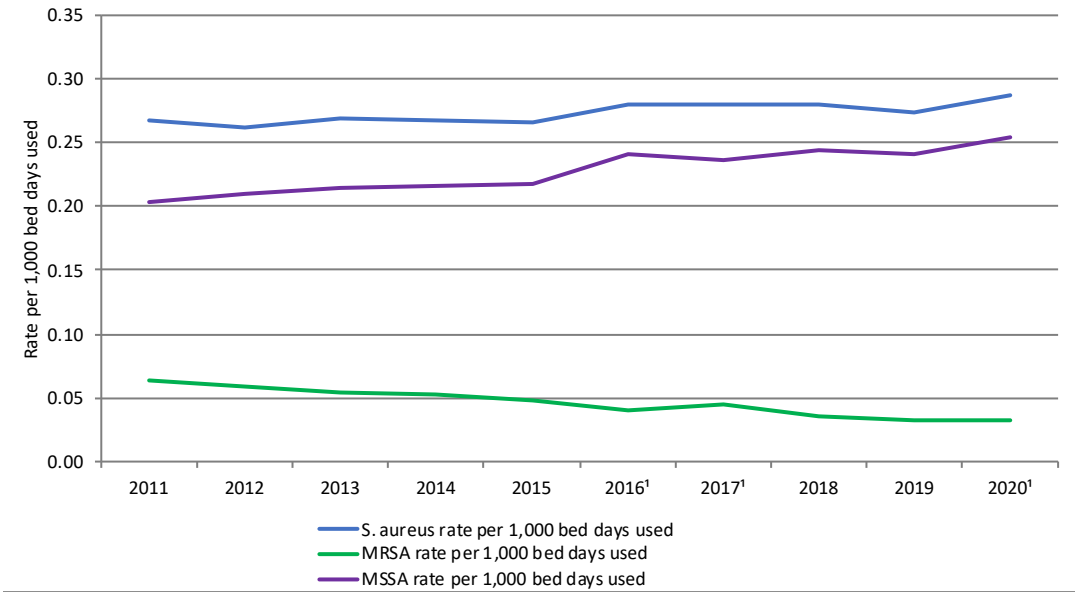
Rationale for the inclusion of indicators

Most people who carry *S. aureus* on their bodies or in their noses do not suffer any ill effects and this is known as "colonisation". However, *S. aureus* (either MRSA or MSSA) can sometimes cause infection; this is more likely to happen to people who are already unwell, particularly those who are in hospital with a serious illness and in those who have intravenous devices in place.

Commentary

- In 2018 the rate of *S. aureus* per 1,000 bed days used was 0.28, this decreased slightly to 0.27 in 2019 and there was an increase to 0.29 in 2020.
- The MRSA rate per 1,000 bed days used has decreased annually since 2011 and was 0.03 in 2020. The rate of MSSA per 1,000 bed days used has increased slightly over this period to a rate of 0.25 in 2020.
- Ireland and other European countries are part of EARS-Net. This Network collects and reports on the proportion of *S. aureus* bloodstream infections that are methicillin-resistant (MRSA) for the participating countries. In 2020 Ireland reported a rate of 12.1% MRSA cases as a proportion of *S. aureus* cases.
- In 2020, in Ireland 12.1% of *S. aureus* bloodstream infections were methicillin resistant; this is as compared with 2011 when 23.8% of these infections were methicillin resistant. These improvements notwithstanding, in 2020 Ireland still ranked 12th out of 29 countries who participate in EARS-Net.

Figure 5.1: *Staphylococcus aureus*, MSSA and MRSA rates per 1,000 bed days used, 2011-2020

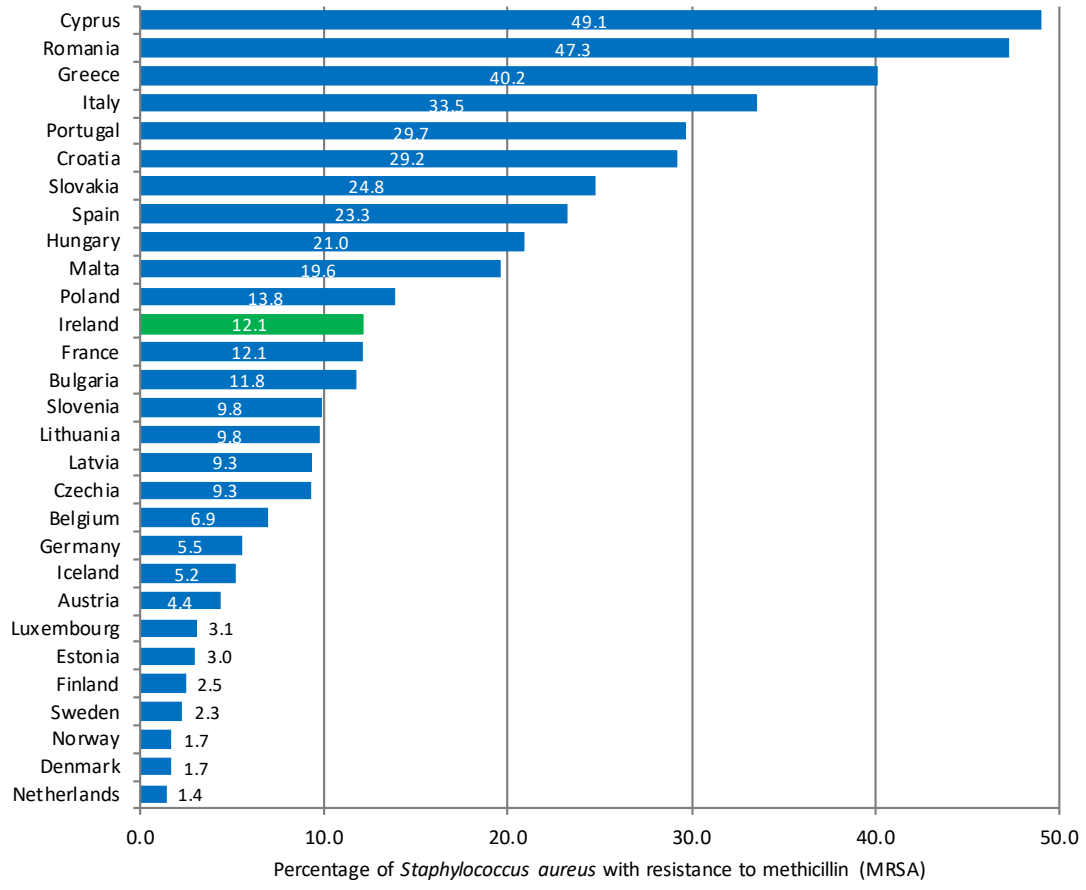


[1] Data missing for two laboratories in 2020 and one lab each in 2016 and 2017.

Source: Health Protection Surveillance Centre (HPSC), data reported to EARS-Net

Notes:
(i) National rates are calculated only where both numerator (e.g., numbers of isolates) and denominator (e.g., numbers of bed days used) data are available. Only data from laboratories providing complete annual data to EARS-Net are included.
(ii) Total number of *S. aureus* isolates from blood cultures refers to the first isolate of S. aureus (whether MRSA or MSSA) per patient per year.
(iii) Data on bed days used is obtained by the HPSC from the Health Service Executive (HSE) for acute public hospitals or directly from private hospitals.

Figure 5.2: MRSA cases as a proportion of *Staphylococcus aureus* cases, 2020



Source: Source: EARS-Net

Clostridioides difficile (C. difficile) infection rates

Definition

Rate of new and recurrent cases of *Clostridioides difficile* infection (CDI) in acute hospitals per 10,000 bed days used.

Description

Clostridioides difficile (C. difficile) is a bacterium that is normally found in small amounts in the large bowel. A small proportion (less than 1 in 20) of the healthy adult population, carry this bacterium in their bowel and do not experience any problem with it. However, sometimes when a person takes an antibiotic, some "good" bacteria die allowing the *C. difficile* bacteria to multiply, leading to an infection in the large bowel. Symptoms of *C. difficile* infection (CDI) include diarrhoea, stomach cramps, fever, nausea and loss of appetite. While most people experience a mild illness and make a full recovery, patients can, in certain circumstances, develop serious complications including colitis (inflammation of the bowel) which can be life threatening. Control of *C. difficile* requires good antibiotic stewardship (only using antibiotics when required and using the right antibiotic at the right time, for the right duration) and good infection prevention and control (for example, ensuring that patients, their family members and hospital staff are regularly washing their hands, and that appropriate measures for cleaning and disinfection of equipment are in place).

Under iNAP2, the National Reference Laboratory for *C. difficile* was established in 2021. This provides capacity for enhanced surveillance of *C. difficile* to improve monitoring and increase our understanding of *C. difficile* in Ireland.

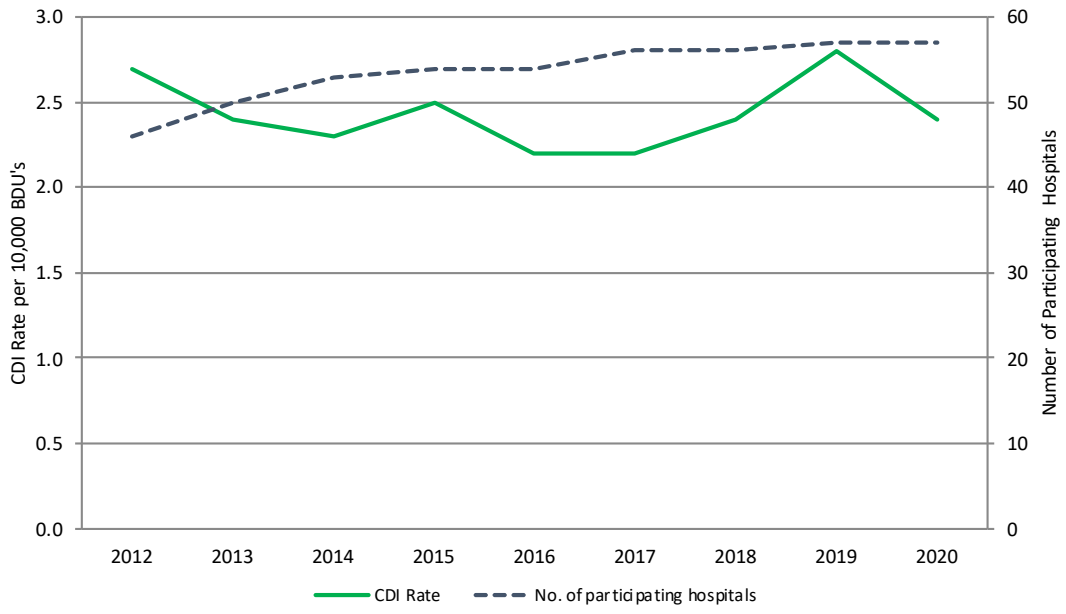
Rationale for the inclusion of indicators

CDI rates in hospitals are recognised and used internationally as one measure of the quality and safety of a healthcare service.

Commentary

- At a national level, the rate of new and recurrent hospital-acquired CDI cases per 10,000 bed days used increased in 2019 (2.8) in comparison to 2018 (2.4). The rate decreased in 2020 (2.4) in comparison to 2019. It is worth noting that the total number of cases in 2020 (984) was less than in 2018 (1,218), however the impact of the pandemic on bed days used may have affected the rate.
- The number of hospitals participating in this reporting scheme has increased annually. There are now 57 hospitals that contribute this data.

Figure 5.3: New and recurrent hospital-acquired *Clostridium difficile* infection cases per 10,000 bed days used, 2012 –2020



Source: Health Protection Surveillance Centre (HPSC)

Notes: Data was unavailable for one tertiary hospital in Q4 of 2018 resulting in some underestimation.

Carbapenemase-producing Enterobacterales (CPE)

Description

Carbapenemase-producing Enterobacterales, known as CPE (sometimes referred to as carbapenem-resistant *Enterobacterales* (CRE)) are gram-negative bacteria that are carried in the bowel and are resistant to most, and sometimes all, available antibiotics. It has become increasingly apparent in recent years that CPE may also persist for long periods in the hospital environment in particular, in drains. While CPE behaves as normal flora in the colon (this is known as colonisation), it can also cause serious infections in other organ systems including bloodstream infection in people who are vulnerable, such as those with urinary catheters and other medical devices, and people undergoing chemotherapy for cancer.

CPE was declared a National Public Health Emergency by the Minister for Health in October 2017. Surveillance of CPE in acute hospitals has increased since that time and the CPE National Reference Laboratory continues to monitor CPE strains. This, together with the increased screening and capacity building for infection prevention and control and antimicrobial stewardship has enhanced the understanding and management of CPE in Ireland.

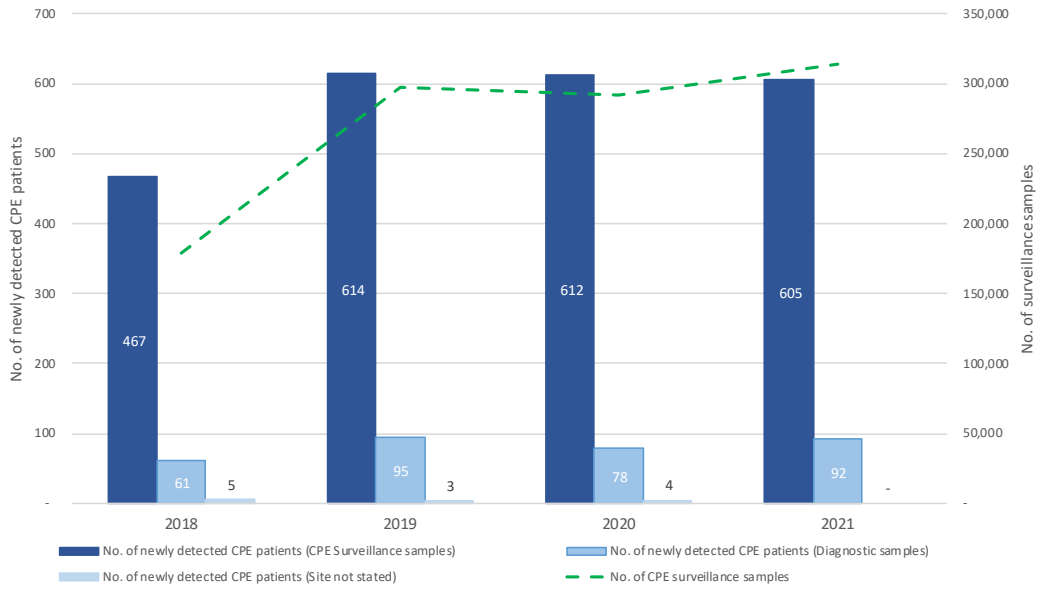
Rationale for the inclusion of indicators

CPE has been identified throughout the world in recent years. Ireland has seen an increase in the number of people who acquire CPE (colonisation and infection) since it was first detected here in 2009 and has progressed a range of initiatives to limit spread.

Commentary

- In 2018 the total number of newly detected CPE patients was 533 this increased to 712 in 2019. The total number of newly detected CPE patients fell slightly in 2020 (694) and there was a slight increase in 2021.
- The majority of newly detected patients each year were detected via CPE surveillance samples rather than diagnostic samples. In general isolates from diagnostic samples are likely to reflect clinical infection. Isolates from surveillance samples reflect detection of CPE gut colonisation in the absence of clinical CPE infection. Detection of most cases of CPE in surveillance samples, as is currently the case, reflects a system in which most people with CPE are detected relatively early in their contact with the healthcare system allowing early application of measures to control spread.
- Regarding the number of CPE surveillance samples taken each year there were 178,839 in 2018 and by 2021 the number was 313,802. By testing and detecting more people who have CPE, people with CPE can be managed more effectively in hospitals, limiting the risk to other people.

Figure 5.4: Newly detected CPE patients detected per year and number of surveillance samples, 2018-2021



Source: National CPE Reference Laboratory (NCPERL) for number of newly detected cases; HSE Business Information Unit (BIU) for number of surveillance screens

Antibiotic consumption in the community

Definition

Community (primary care) antibiotic (ATC group J01) consumption rates are measured in Defined Daily Dose (DDD) per 1,000 inhabitants per day. They are calculated using sales data from pharmaceutical wholesalers to community pharmacies.

DDD is defined as the assumed average maintenance dose per day for a drug when used for its main indication in adults [2]. Community (primary care) antibiotic consumption data is obtained from IQVIA (a human data science company) and contains regional, monthly wholesaler-to-retail pharmacy sales data from over 95% of the wholesalers and manufacturers in Ireland [3]. This data does not refer to individual prescriptions, nor is it a measure of doses actually taken by patients.

Description

Reducing the inappropriate use of antimicrobial medicines, as well as preventing the transmission of infections and disease, is vital to stop the development and spread of resistant microorganisms.

The European Surveillance of Antimicrobial Consumption Network (ESAC-Net) produces a set of consensus quality indicators for antibiotic consumption in primary care in Europe. This set of nine indicators is comprised of general antibiotic consumption indicators (e.g., total use, all major antibiotics combined) and more specific indicators (e.g., penicillin use, macrolide use). The indicator reported on here is the general indicator 'total use, all major antibiotics combined' (ATC group J01).

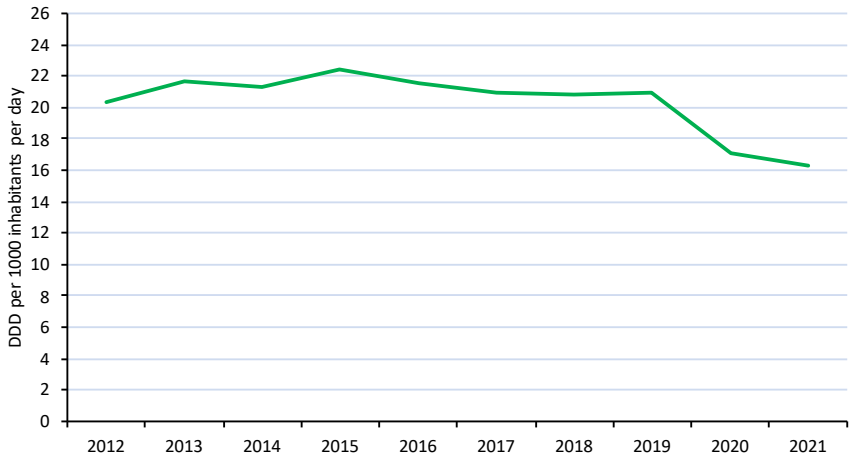
Rationale for the inclusion of indicators

Optimising antibiotic use through antimicrobial stewardship is strategic objective 4 in Ireland's second One Health National Action Plan on Antimicrobial Resistance 2021-2025 (iNAP2). To implement quality improvement in this area, measurement of antibiotic use is vital to inform required areas and assess the impact of interventions.

Commentary

- The total volume of antibiotics consumed annually decreased from 21 DDD per 1,000 inhabitants per day in 2019 to 17.1 in 2020 and a further decrease to 16.3 in 2021. The COVID-19 pandemic is likely to have had an impact on the lower rates in 2020 and 2021 with less healthcare interactions and less transmission of infections due to public health measures (e.g., people cocooning, wearing of face masks and social distancing).
- In 2020, Ireland reported an antibiotic consumption rate of 17.1 DDD per 1,000 inhabitants per day to the European Centre for Disease Control. This is in the above the EU/EEA average of 15 DDD per 1,000 inhabitants.

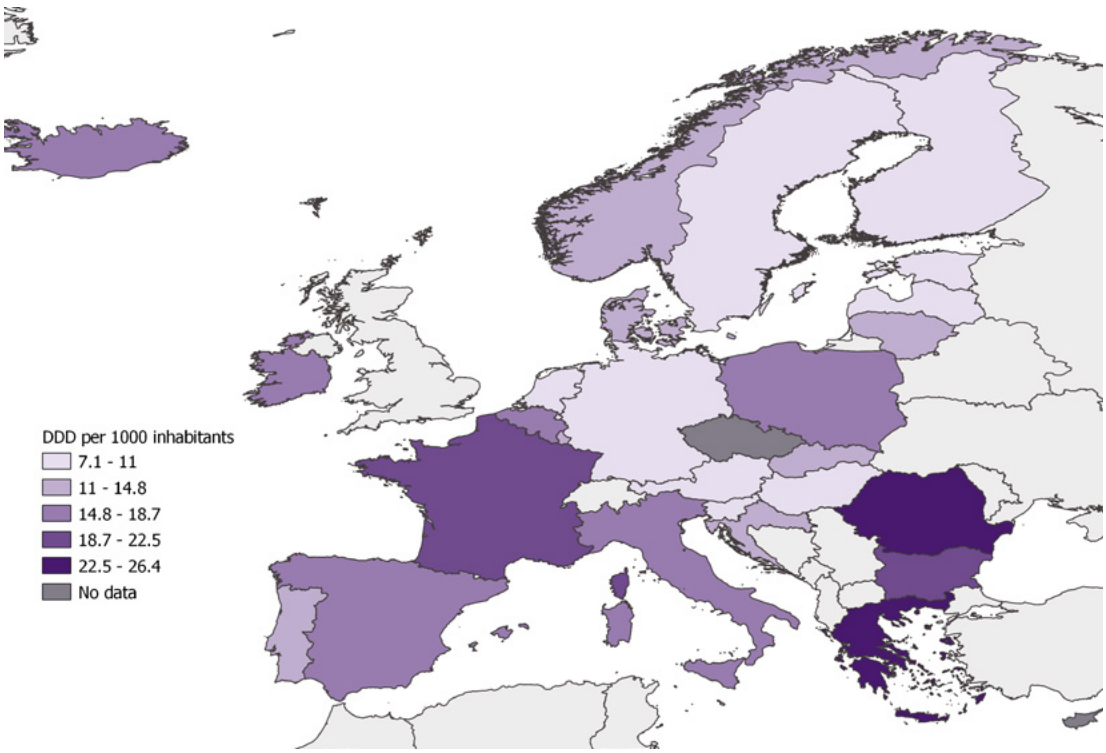
Figure 5.5: Community (primary care) antimicrobial use (wholesale-to-community pharmacy sales) in Ireland, 2012-2021, expressed in DDD per 1000 inhabitants per day



Source: Primary Care Antimicrobial Consumption Results, Health Protection Surveillance Centre (HPSC)

Notes:
(i) This data is based on the ATC/DDD calculation method which was updated in 2019. The HPSC has applied these methodological changes to data for previous years. Therefore, figures for previous years in this report will be different from previous NHQRS reports, which predated these methodological changes.
(ii) Irish antimicrobial sales data are from IQVIA (formerly IMS Health), a pharmaceutical market research company. This dataset contains regional, monthly wholesaler-to-community pharmacy sales data from over 95% of the wholesalers and manufacturers in Ireland. Although the IQVIA database used is very comprehensive, there are some limitations. The data are based on pharmacy wholesale data, rather than on individual prescriptions. See metadata sheets for further details on data limitations.
(iii) The effects of the pandemic are likely to have impacted prescribing practices during 2020 and 2021. The population level measures introduced to minimise the community spread of COVID-19, combined with the focus on hand hygiene, face masks and social distancing likely resulted in less transmission of infections routinely requiring the prescription of antibiotics in the community.

Figure 5.6: Community antibiotic (ATC group J01) consumption in EU/EEA countries 2020, expressed in DDD per 1000 inhabitants per day



Source: Map prepared by Department of Health based on data contained in 'Antimicrobial consumption in the EU/EEA (ESAC-Net), Annual Epidemiological Report for 2020'

Source:
Cyprus and Czechia only provided only total care data (community and hospital combined) and data for these countries are not included in the map.

Antibiotic consumption in public acute hospitals

Definition

In-hospital antibiotic consumption rates are measured in Defined Daily Dose (DDD) per 100 bed days used (BDU). DDD is defined as the assumed average maintenance dose per day for a drug when used for its main indication in adults.

Hospital data are based on the volume of antibiotic drugs supplied to inpatient areas by hospital pharmacies and is obtained directly from publicly funded hospital pharmacy software systems.

Description

Reducing the inappropriate use of antimicrobial medicines, as well as preventing the transmission of infections and disease, is vital to stop the development and spread of resistant microorganisms.

The European Surveillance of Antimicrobial Consumption Network (ESAC-Net) produces a set of consensus quality indicators for antibiotic consumption in Europe. This set of nine indicators is comprised of general antibiotic consumption indicators (e.g., total use, all major antibiotics combined) and more specific indicators (e.g., penicillin use, macrolide use). The indicator reported on here is the general indicator "total use, all major antibiotics combined".

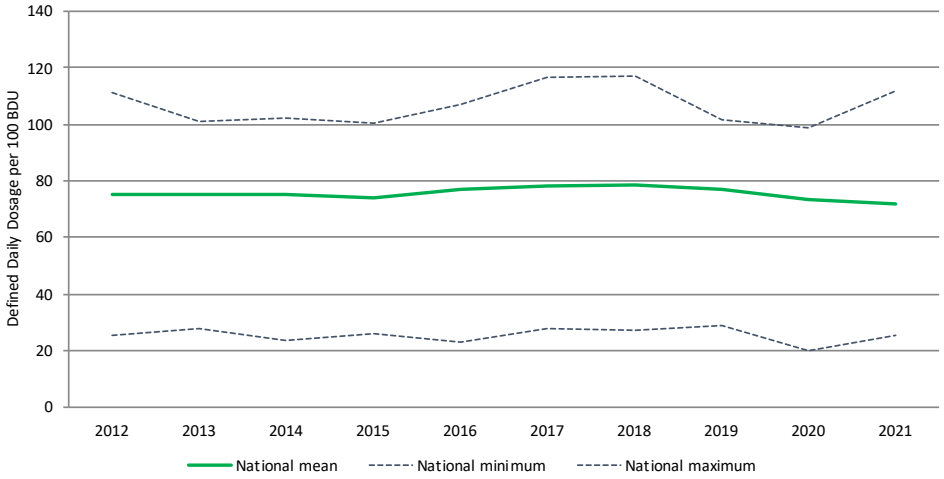
Rationale for the inclusion of indicators

Optimising antibiotic use through antimicrobial stewardship is strategic objective 4 in Ireland's second One Health National Action Plan on Antimicrobial Resistance 2021-2025 (iNAP2). To implement quality improvement in this area, measurement of antibiotic use is vital to inform required areas and assess the impact of interventions.

Commentary

- The average volume of antibiotics consumed in hospitals increased between 2015 and 2018, from a consumption rate of 73.8 per 100 BDU in 2015 to 78.6 per 100 BDU in 2018. The rate has declined in each subsequent year to 71.9 per 100 BDU in 2021. The COVID-19 pandemic is likely to have had an impact on the lower rates in 2020 and 2021 with less healthcare interactions and less transmission of infections.
- Variation in antibiotic consumption by hospital is wide. These differences may relate in part to differences in the specific patient population served by individual hospitals.

Figure 5.7: Annual rate of hospital consumption of systemic antibacterial drugs in DDD per 100 BDU, 2012-2021



Source: Health Protection Surveillance Centre (HPSC)

Notes:

(i) 2021 data is provisional to the end of Q4 2021 and subject to change

(ii) The HPSC used the 2020 version of the ATC/DDD calculation method to prepare this data. Therefore, figures in this report will be different from prior reports. However, in this report historical data have been updated to reflect the current ATC/DDD designations of antimicrobial agents.

(iii) Starting from 2017, returned items to the dispensary are subtracted from the overall consumption rates. For the 2017 Q1 and Q2 data, this has resulted in a decrease of the overall rate by 1.5-2% for the mean and median values of the major classes of drugs, with decreases to the total anti-bacterial consumption for individual hospitals ranging from 0% to 9%. Additional stewardship or minor methodological changes may have also occurred.

(iv) The effects of the pandemic are likely to have impacted prescribing practices during 2020 and 2021 with less healthcare interactions and less transmission of infections.

Table 5.1: Annual hospital antibacterial consumption rate in DDD per 100 BDU, 2020-2021

Hospital Group	2020	2021
Ireland East	**69.4**	**71.6**
Cappagh National Orthopaedic Hospital	20.0	51.1
Mater Misericordiae University Hospital	83.2	82.8
Midland Regional Hospital, Mullingar	77.7	74.0
National Maternity Hospital, Holles Street	28.7	32.2
Our Lady's Hospital, Navan	86.4	111.7
Royal Victoria Eye and Ear Hospital, Dublin	40.5	40.1
St. Columcille's Hospital, Loughlinstown	40.9	37.9
St. Luke's General Hospital, Kilkenny	47.8	46.3
St. Michael's Hospital, Dun Laoghaire	82.2	67.0
St. Vincent's University Hospital, Elm Park	77.0	80.4
Wexford General Hospital	87.4	70.9
Dublin Midlands	**80.5**	**80.5**
Coombe Women's and Infant's University Hospital	34.2	34.2
Midland Regional Hospital, Portlaoise	80.5	81.3
Midland Regional Hospital, Tullamore	79.2	72.6
Naas General Hospital	86.9	99.2
St. James's Hospital	90.9	95.3
St Luke's Hospital, Rathgar	30.3	27.0
Tallaght University Hospital	77.9	72.9
RCSI Hospitals	**75.1**	**78.0**
Beaumont Hospital	77.0	92.0
Cavan General Hospital	98.8	88.4
Connolly Hospital, Blanchardstown	77.0	71.7
Our Lady of Lourdes Hospital, Drogheda	79.2	75.4
Rotunda Hospital	25.4	25.6
UL Hospitals	**74.1**	**71.5**
Ennis Hospital	63.7	51.4
Nenagh Hospital	53.1	64.4
St. John's Hospital, Limerick	63.2	53.4
University Hospital Limerick	78.3	75.5
South / South West	**80.2**	**72.1**
Cork University Hospital	92.0	79.8
Cork University Hospital Maternity	31.4	27.3
Kilkreene Orthopaedic Hospital, Co. Kilkenny	22.5	38.1
Mercy University Hospital, Cork	81.2	79.5
South Infirmary-Victoria Hospital, Cork	53.2	54.6
South Tipperary General Hospital, Clonmel	85.3	84.4
University Hospital Kerry, Tralee	82.4	69.3
University Hospital Waterford	83.4	72.5
Saolta	**69.8**	**64.2**
Galway University Hospitals	66.1	53.9
Letterkenny University Hospital	84.4	82.1
Mayo University Hospital	78.8	75.5
Portiuncula University Hospital, Ballinasloe	81.6	73.6
Roscommon University Hospital	39.0	45.5
Sligo University Hospital	56.7	58.7
Children's Hospitals	**50.1**	**43.7**
Children's University Hospital, Temple St	28.4	34.8
Our Lady's Children's Hospital, Crumlin	63.4	68.8
National mean	73.7	71.9

Source: Health Protection Surveillance Centre (HPSC)

Notes:
(i) 2021 data is provisional to the end of Q4 2021 and subject to change.
(ii) The HPSC used the 2020 version of the ATC/DDD calculation method to prepare this data.
(iii) It should be noted that the patient cohort in Children's Hospitals is distinct from that in other acute hospitals and therefore variation of antimicrobial consumption is likely to be observed.

Chronic benzodiazepine[2] usage in the community in people aged 65 years and over

Definition

The number of patients aged 65 years and over (per 1,000 eligible patients) who have had a reimbursable prescription for a benzodiazepine or benzodiazepine related medication dispensed for 12 months or more[3] via the Community Drugs Schemes[4].

Description

Benzodiazepines are a class of medication that can be used in the treatment of a number of conditions, including insomnia, anxiety, addiction, agitation and neurological disorders. Benzodiazepine related drugs (i.e., z-drugs) are indicated for the short-term treatment of insomnia. When they are appropriately prescribed, benzodiazepines and related drugs are considered relatively safe as they are effective, fast-acting and have low toxicity. Benzodiazepines are also prescribed in the treatment of muscle spasticity, involuntary movement disorders and detoxification from alcohol. [4].

However, as with any medicine, their use also carries the risk of side-effects and toxic reactions, particularly among older people. With an increased sensitivity to benzodiazepines and a slower metabolism, older patients are at high risk of developing delirium and cognitive impairment and are more susceptible to falls and fractures [4].

Europe has traditionally been the region with the highest calculated average national consumption rates for benzodiazepine-type anxiolytics [4].

Dependence to benzodiazepines is recognised as a significant risk in patients receiving treatment for longer than one month [5].

In May 2017, the Misuse of Drugs Regulations 2017 introduced additional controls on the prescribing and dispensing of benzodiazepines and z-drugs. The HSE Medicines Management Programme published guidance and resources on the appropriate prescribing of benzodiazepines and z-drugs for the treatment of anxiety and insomnia in 2018 (updated 2021). This guidance is relevant to prescribers and may also be useful to pharmacists and other health care professionals.

Rationale for the inclusion of indicators

Benzodiazepines are often prescribed for older adults for anxiety and sleep disorders, despite the risk of adverse side-effects such as fatigue, dizziness and confusion. Long-term use of benzodiazepines can lead to adverse events (falls, road accidents and overdose), tolerance, dependence and dose escalation. Ireland reports higher than average rates for chronic prescription of benzodiazepines in patients aged 65 and over [6].

Notes on measurement changes

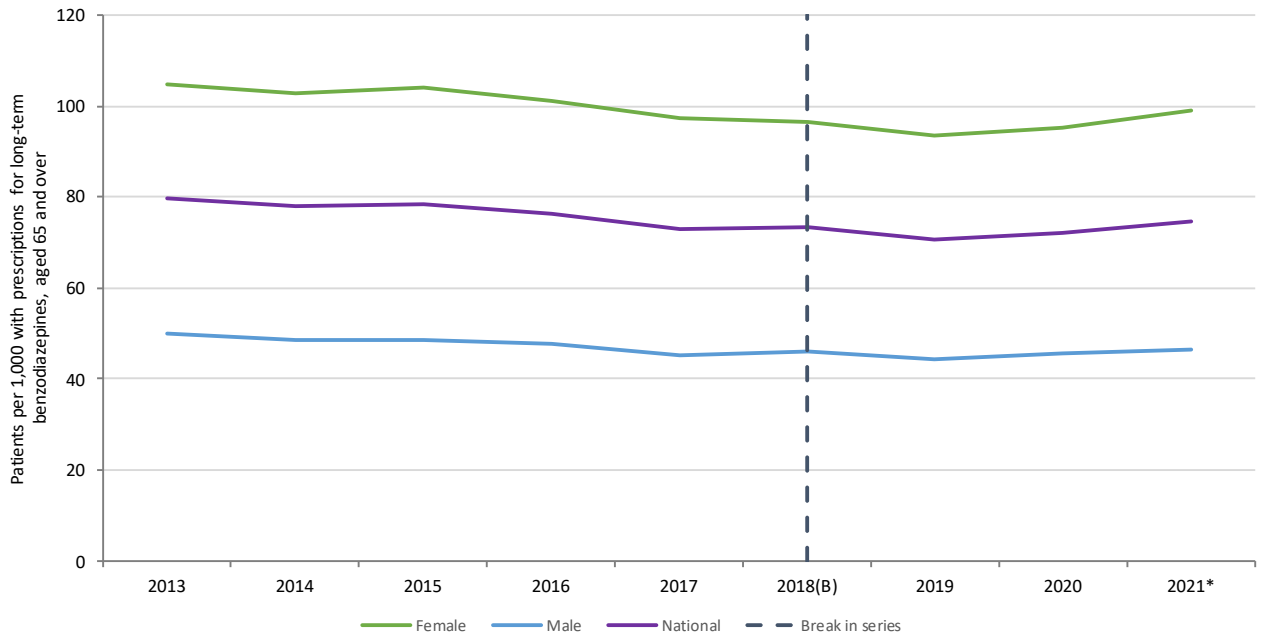
The calculation of this indicator is based on the OECD's Health Care Quality Outcomes (HCQO) methodology. In line with this methodology, in previous years the indicator measured three types of benzodiazepine and related drugs (ATC N05BA, ATC N05CD, ATC N05CF). The HCQO data collection methodology was revised in 2018-2019 and one additional benzodiazepine (ATC N03AE01) was added. This represents a break in the series and data for 2018 are not directly comparable with previous years as they represent a larger cohort of medicines.

2 This indicator refers to benzodiazepine and benzodiazepine related drugs which include the following ATC codes: N05BA, N05CD, N05CF and N03AE01.
3 The OECD Healthcare Quality and Outcomes (HCQO) indicator definition refers to individuals aged 65 years and older prescribed > 365 DDDs (365 days or longer) of benzodiazepines or benzodiazepine related drugs. Data for Ireland, sourced from the Primary Care Reimbursement Service, is not available by DDD or by day. Therefore, for Ireland, the numerator refers to individuals with 12 individual prescription claim months.
4 Community Drugs Schemes refer to e.g., General Medical Services Scheme, the Drug Payments Scheme and the Long-Term Illness Scheme.

Commentary

- In 2021 the overall national chronic prescription rate in Ireland was 74.5 patients per 1,000 persons eligible for one of the Community Drugs Schemes and aged 65 years and older. The rate increased from 70.7 in 2019 to 72.3 in 2020 and further to 74.5 in 2021. This data is via the Primary Care Reimbursement Service (PCRS). It is important to note that PCRS data only contains information on prescriptions dispensed through one of the public schemes it administers (e.g., General Medical Services (GMS) scheme, Drugs Payment Scheme (DPS) and Long-Term Illness Scheme (LTI)). It excludes information on private prescription dispensing including those who do not meet the threshold for the Drug Payment Scheme which has changed over time. However, it includes information on prescriptions dispensed to nursing home residents where these are dispensed through Community Drugs Schemes.
- There was a variation in the prescription rates between men and women, with women being prescribed benzodiazepines or benzodiazepine related drugs for chronic use more frequently.
- Ireland reported the second highest rate of chronic benzodiazepine prescription in the OECD at 70.7 per 1,000 persons aged aged 65 years and older. The OECD average was 27.9 per 1,000. It should be noted that not all OECD countries report this data and only 19 countries are included. Ireland's data related to 2019. Seven countries provided data for 2020 which would have been impacted by COVID-19. The OECD report that some of the international variation can be explained by differences in disease prevalence and treatment guidelines as well as by different reimbursement and prescribing policies for benzodiazepines and related drugs.
- There was large regional variation in the rate of prescriptions across community health office and local health office areas in Ireland. The rate increased across all community health offices over the 3-year period from 2019-2021.

Figure 5.8: Number of individuals aged 65 years and over dispensed prescriptions for benzodiazepines or related drugs for 12 months or more, per 1,000 eligible persons, 2013-2021

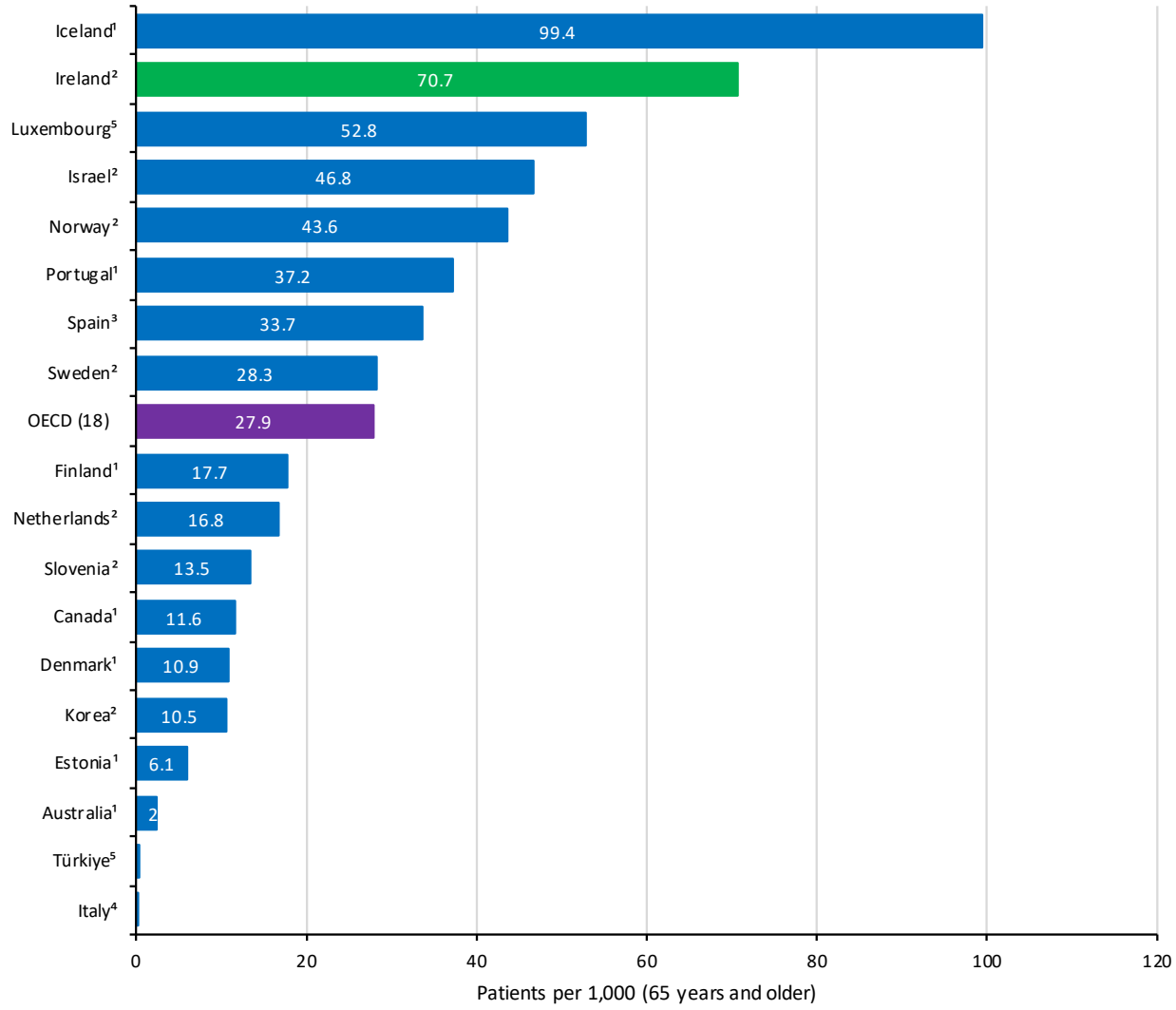


Source: Primary Care Reimbursement Service (PCRS)

(B) Break in series: The calculation of this indicator is based on the OECD's Health Care Quality and Outcomes (HCQO) methodology. In line with this methodology, in previous years the indicator measured three types of benzodiazepines and benzodiazepine related drugs (ATC N05BA, ATC N05CD, ATC N05CF). The HCQO data collection methodology was revised in 2018-2019 and one additional drug (ATC N03AE01) was added. This represents a break in the series. Data for 2018 onwards are not directly comparable with previous years.
* In general, in Ireland, 12 individual claim months is used to determine an eligible patient's 12 months of continuous drug usage. However, due to the disruption of IT and claims systems resulting from the cyber-attack in May 2021, 11 months of claims was used to determine 12 months of drug usage for 2021. Caution is required comparing 2021 data with previous years.

Note: Eligible patients refers to people aged 65 years or over on 1st January the following year who claimed for prescriptions the previous year dispensed through the General Medical Services (GMS) scheme or the Drugs Payment Scheme (DPS) or the Long-Term Illness Scheme (LTI) and are captured via the Primary Care Reimbursement Service's information system.

Figure 5.9: Number of patients aged 65 and over, dispensed benzodiazepines or related drugs for 365 days or more, per 1,000 eligible population, for selected OECD countries, 2020 (or nearest year)

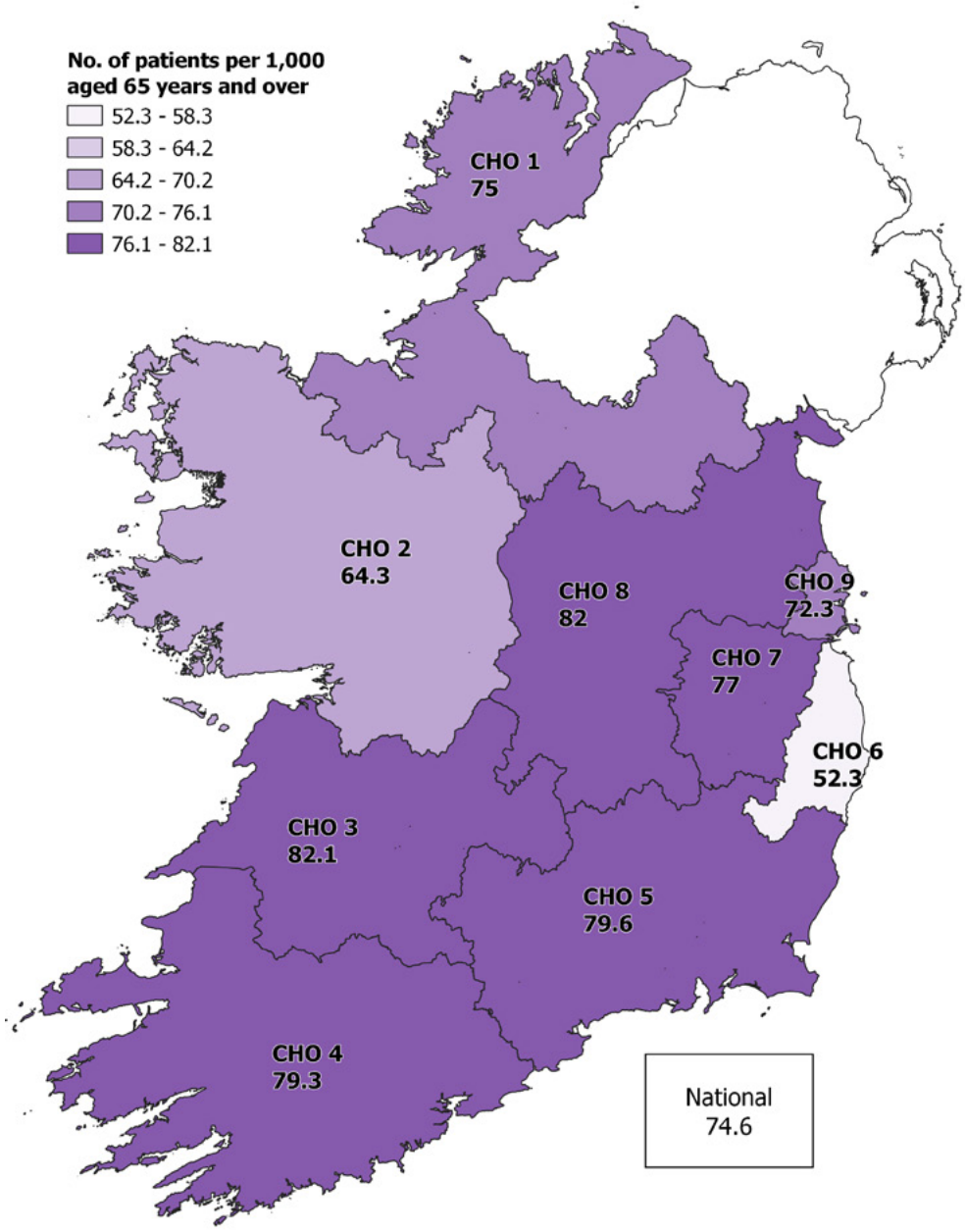


[1] 2020; [2] 2019; [3] 2018; [4] 2017; [5] 2016

Source: OECD Health Statistics

Note:
(i) The OECD Healthcare Quality and Outcomes (HCQO) indicator definition refers to individuals aged 65 years and older prescribed > 365 DDDs (365 days or longer) of benzodiazepines or benzodiazepine related drugs. Data for Ireland, sourced from the Primary Care Reimbursement Service, is not available by DDD or by day. Therefore, for Ireland, the numerator refers to persons aged 65 years and over with 12 individual prescription claim months.
(ii) For Ireland eligible patients refer to those who are eligible for a prescription via Community Drugs Schemes and are captured via the Primary Care Reimbursement Service's information system. See metadata sheets for detailed indicator definitions and methodology. Differences in coding practices among countries may affect the comparability of data. Differences in prescription policies and reimbursement systems may also affect data comparability.
(iii) Seven countries have provided data for 2020 which would have been impacted by COVID-19. Data for Ireland relates to 2019, Caution is required in comparing 2020 data with earlier years. Chart excludes any OECD country where latest available data is for 2015 or earlier.
(iv) OECD (18) average is an unweighted average based on latest available year's data for countries which have reported for 2016 or later.

Figure 5.10: Number of individuals aged 65 years and over dispensed prescriptions for benzodiazepines or related drugs for 12 months or more, per 1,000 eligible persons, by Community Health Organisation, 2021*



Source: Primary Care Reimbursement Service (PCRS)

* In general, in Ireland, 12 individual claim months is used to determine an eligible patient's 12 months of continuous drug usage. However, due to the disruption of IT and claims systems resulting from the cyber-attack in May 2021, 11 months of claims was used to determine 12 months of drug usage for 2021. Caution is required comparing 2021 data with previous years.

Table 5.2: Number of individuals aged 65 years and over dispensed prescriptions for benzodiazepines or related drugs for 12 months or more, per 1,000 eligible persons, by Community Health Organisation and Local Health Office, 2019-2021

Community Health Organisation	Local Health Office	2019	2020	2021*
CHO 1	Cavan/Monaghan	78.6	77.5	78.9
	Donegal	71.9	72.1	73.9
	Sligo/Leitrim	67.3	71.8	72.5
	CHO1 Total	**72.7**	**73.7**	**75.0**
CHO 2	Galway	55.1	57.6	58.9
	Mayo	59.7	63.9	65.3
	Roscommon	74.0	75.8	79.9
	CHO 2 Total	**59.6**	**62.5**	**64.3**
CHO 3	Clare	69.4	69.6	72.9
	Limerick	84.1	83.8	86.7
	Tipperary North/East Limerick	78.3	78.6	84.6
	CHO 3 Total	**78.5**	**78.5**	**82.1**
CHO 4	North Cork	55.1	56.7	59.7
	North Lee	63.6	63.4	64.5
	South Lee	90.9	94.5	100.1
	West Cork	86.0	86.9	93.5
	Kerry	54.8	55.5	57.3
	CHO 4 Total	**73.5**	**75.1**	**79.3**
CHO 5	Carlow/Kilkenny	75.3	76.2	79.5
	Tipperary South	88.5	91.2	95.7
	Waterford	76.3	74.4	76.7
	Wexford	66.0	70.8	71.9
	CHO 5 Total	**75.3**	**77.0**	**79.6**
CHO 6	Dublin South	50.1	51.7	51.7
	Dublin South East	43.9	48.2	48.1
	Wicklow	55.4	56.4	57.5
	CHO 6 Total	**49.4**	**51.9**	**52.3**
CHO 7	Dublin South City	72.6	72.7	76.7
	Dublin South West	81.4	87.3	87.5
	Dublin West	76.9	75.2	77.1
	Kildare/West Wicklow	68.7	68.5	68.4
	CHO 7 Total	**74.7**	**75.9**	**77.0**
CHO 8	Laois/Offaly	76.4	77.8	79.6
	Longford/Westmeath	85.2	87.6	96.4
	Louth	88.6	92.7	92.9
	Meath	65.3	66.1	66.8
	CHO 8 Total	**77.6**	**79.6**	**82.0**
CHO 9	Dublin North West	66.7	67.8	68.2
	Dublin North Central	77.6	80.0	84.9
	Dublin North	64.7	67.0	68.5
	CHO 9 Total	**68.9**	**70.6**	**72.3**
National Rate		**70.7**	**72.3**	**74.6**

Source: Primary Care Reimbursement Service (PCRS)

* In general, in Ireland, 12 individual claim months is used to determine an eligible patient's 12 months of continuous drug usage. However, due to the disruption of IT and claims systems resulting from the cyber-attack in May 2021, 11 months of claims was used to determine 12 months of drug usage for 2021. Caution is required comparing 2021 data with previous years.

Notes: (i) 'Eligible patients' refers to people aged 65 years or over on 1st January the following year who claimed for prescriptions the previous year which are dispensed through the General Medical Services (GMS) scheme or the Drugs Payment Scheme (DPS) or the Long-Term Illness Scheme (LTI) and are captured via the Primary Care Reimbursement Service's information system.

References

[1] World Health Organization, "Health care without avoidable infections The critical role of Infection Prevention and Control," World Health Organization, Geneva, 2016.
[2] A. Oza and R. Cunney, "Outpatient Antibiotic Use in Ireland 2009," *Epi-Insight*, vol. 11, no. 7, 2010.
[3] Health Protection Surveillance Centre, "Public MicroB Report: Primary Care Antibiotic Consumption Results," HPSC, 2016.
[4] United Nations , "Report of the International Narcotics Control Board for 2015," United Nations, New York, 2016.
[5] Royal College of Psychiatrists, "Benzodiazepines: Risks, Benefits or Dependence. A Reevaluation," 1997.
[6] OECD, "Health at a Glance 2019: OECD Indicators," OECD Publishing, Paris, 2019.

Domain 5 indicators metadata

Indicator	***Staphylococcus aureus*, methicillin susceptible (MSSA) and methicillin resistant *Staphylococcus aureus* (MRSA) bloodstream infection rates**
Definition	Rate of *Staphylococcus aureus* (*S. aureus*), methicillin susceptible *S. aureus* (MSSA) and methicillin resistant *S. aureus* (MRSA) bloodstream infections in acute hospitals per 1,000 bed days used. Under the case definition for the European Antimicrobial Resistance Surveillance Network (EARS-Net), data are collected on the first bloodstream isolate of S. aureus per patient per year.
Years Covered	National trend: 2011 – 2020 European Antimicrobial Resistance Surveillance Network (EARS-net) comparison 2020
Classification	Not applicable
Methodology	Under the case definition for the European Antimicrobial Resistance Surveillance Network (EARS-Net), MRSA rates are calculated based on the number of MRSA cases per 1,000 bed days used and MSSA rates on the number of MSSA cases per 1,000 bed days used.
Notes	Previously the case definition meant data were collected on the first bloodstream isolate of *S. aureus* per patient per quarter. The EARS-Net case definition has changed to the first per patient per year.
Data Source(s)	Health Protection Surveillance Centre EARS–Net

Indicator	***Clostridioides difficile (C difficile)* rates**
Definition	The rate of new and recurrent cases of C. difficile in acute hospitals per 10,000 bed days used.
Years Covered	National trend: 2012-2020
Classification	Not applicable
Methodology	Rates are calculated based on the number of new and recurrent hospital-acquired cases of *Clostridioides difficile* per 10,000 bed days used.
Notes	Surveillance began in 2009. Between 2009 and 2015, there was a gradual increase in the numbers of hospitals participating in the enhanced surveillance system. The numbers of participating hospitals should be taken into account when interpreting national trends. There is considerable variation in the *C. difficile* testing methodologies used by participating laboratories. Different methodologies have different levels of sensitivity in detecting *C. difficile* therefore inter-hospital comparison of CDI rates should be made with caution.
Data Source(s)	Health Protection Surveillance Centre

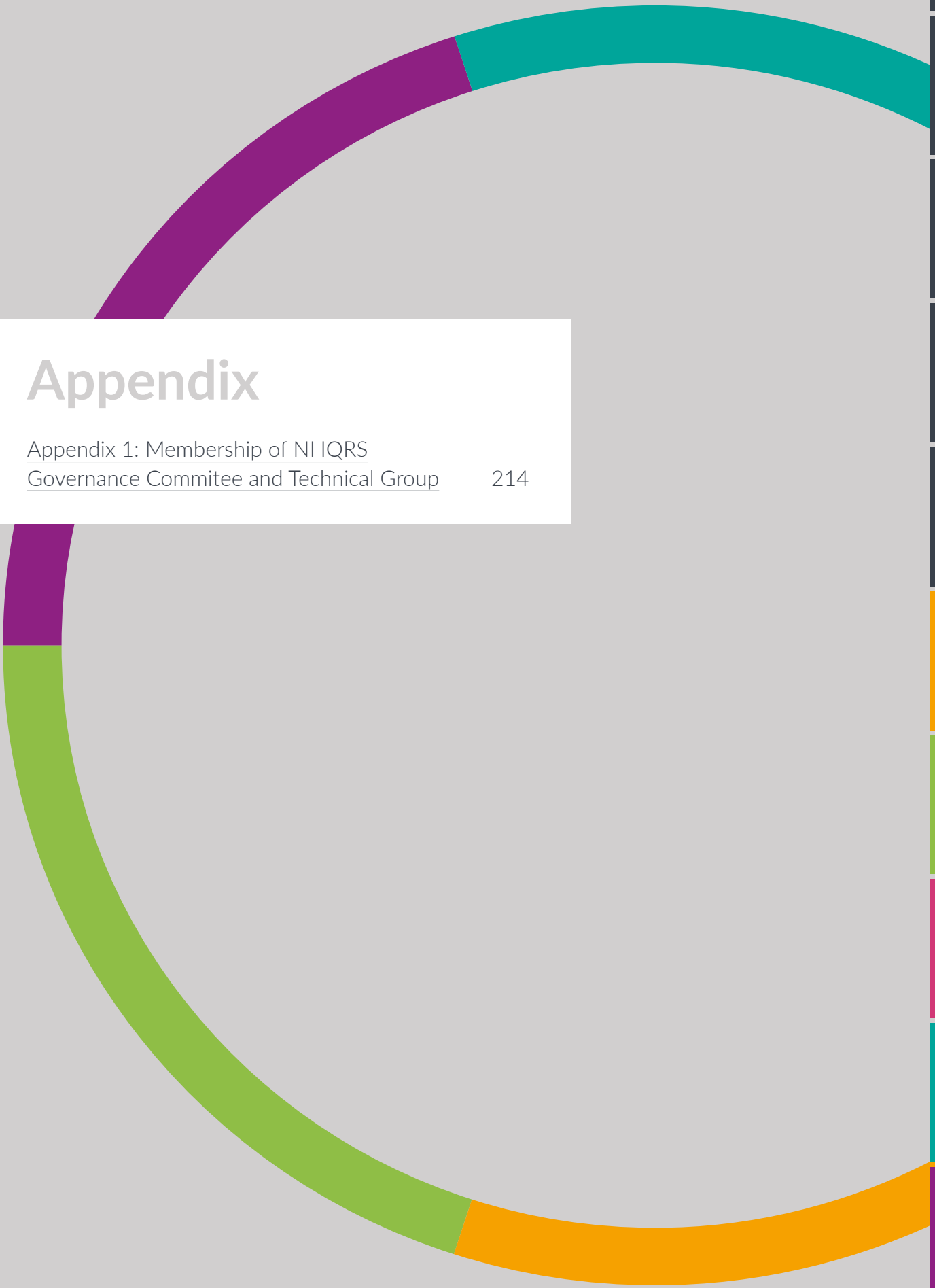
Indicator	**Carbapenemase-producing *Enterobacterales* (CPE)**
Definition	Number of CPE surveillance samples per year in acute HSE hospitals. Number of newly detected CPE patients reported by the National CPE Reference Laboratory from CPE surveillance samples and diagnostic samples.
Years Covered	National trend: 2018-2021
Classification	Not applicable
Methodology	Data was sourced from Antimicrobial Resistance and Infection Control (AMRIC), Health Service Executive. AMRIC source data on the number of newly detected CPE cases from the National CPE Reference Laboratory (NCPERL). NCPERL data comes largely from HSE acute hospital operations, but also includes data from other acute hospitals and the community.
Notes	Data on the number of surveillance screens is sourced from the HSE Business Information Unit (BIU). BIU data comes solely from HSE acute hospital operations. It is important to distinguish between cases detected from diagnostic sample isolates and case detected from surveillance sample isolates (both of which are reported). In general isolates from diagnostic samples are likely to reflect clinical infection. Isolates from surveillance samples reflect detection of CPE gut colonisation in the absence of clinical CPE infection. Detection of most cases of CPE in surveillance samples, as is currently the case, reflects a system in which most people with CPE are detected relatively early in their contact with the healthcare system allowing early application of measures to control spread.
Data Source(s)	HSE, Antimicrobial Resistance & Infection Control (AMRIC)

Indicator	Antibiotic consumption in the community (primary care)
Definition	Community antibiotic consumption rates are measured in Defined Daily Dose (DDD) per 1,000 inhabitants per day from wholesale to community pharmacy sales data.
Years Covered	National trend: 2012-2021
Classification	Community antibiotic consumption by European country: 2020
Methodology	Community antibiotic consumption rates are measured in Defined Daily Dose (DDD) per 1,000 inhabitants per day (DID) from wholesale to community pharmacy sales data. DDD is defined as the assumed average maintenance dose per day for a drug used for its main indication in adults. Data is based on the ATC/DDD calculation method which was updated in 2019. The HPSC has applied these methodological changes to data for previous years. Therefore, figures for previous years in this report will be different from previous NHQRS reports, which predated these ATC/DDD methodological changes.
Notes	Irish antimicrobial sales data are from IQVIA (formerly IMS Health), a pharmaceutical market research company. This dataset contains regional, monthly wholesaler-to-community pharmacy sales data from over 95% of the wholesalers and manufacturers in Ireland. Although the IQVA database used is very comprehensive, there are some limitations. The data are based on pharmacy wholesale data, rather than on individual prescriptions. Thus, they cannot be used to determine the actual number of antimicrobial courses taken and do not provide information on dose or duration of therapy. Factors such as stockpiling of antimicrobials in pharmacies and drug wastage (e.g., passing the sell-by date) may introduce biases. Likewise, recent changes to prescribing guidelines, that recommend using higher doses may lead to an increase in consumption (as measured by DDD/1000 inhabitants/day), while the total number of prescriptions may have remained static or even declined.
Data Source(s)	Health Protection Surveillance Centre European Surveillance of Antimicrobial Consumption Network (ESAC-net) - European Centre for Disease Prevention and Control (ECDC)

Indicator	Antibiotic consumption in public acute hospitals
Definition	Hospital antibiotic consumption rates are measured in Defined Daily Dose (DDD) per 100 Bed Days Used from hospital consumption data.
Years Covered	National trend: 2012-2021
Classification	In-hospital antibiotic consumption by hospital group and hospital: 2021
Methodology	Hospital antibiotic consumption rates expressed as Defined Daily Dose (DDD) per Bed Days Used from hospital consumption data. DDD is defined as the assumed average maintenance dose per day for a drug used for its main indication in adults. Data is based on the ATC/DDD calculation method which was updated in 2020. The HPSC has applied these methodological changes to data for previous years. Therefore, figures for previous years in this report will be different from previous NHQRS reports. Total acute inpatient antibiotic consumption in Defined Daily Doses per 100 Bed-Days Used (DDD/100BDU) for each hospital is presented. The denominator data (bed days) were obtained from the Business Intelligence Unit of the Corporate Planning and Corporate Performance (CPCP) section of the HSE. Exclusions: Acute inpatient means that data on antibiotics dispensed to outpatients, day cases and external facilities are excluded
Notes	Hospital care data are directly from publicly funded hospital pharmacy software systems. The Irish Health Services Executive sanctioned the appointment of additional antibiotic liaison hospital pharmacists in 2006/7, and national hospital antibiotic stewardship programmes began in 2008. The consumption data are based on the volume of antimicrobial drugs supplied to inpatient areas by hospital pharmacies. The data are not based on individual prescriptions and do not measure the appropriateness of antibiotic therapy. Thus, a hospital may report a high rate of antibiotic consumption, but this rate may be appropriate to the specific patient population served by that hospital. There are many hospitals in the sample that provide maternity services and/or paediatric care, therefore there is an inherent bias in the system. A further limitation with the ATC-DDD system which captures prescribing data is that the measure is for the main indication only, but a single drug can be used to treat several different conditions. Additionally, the rates for an individual hospital may vary due to changes in case-mix, guidelines for the optimal dosage regimen of an antibiotic, and overall hospital activity levels. In 2017 a methodology change was made to the reporting of antibiotic consumption rates in acute hospitals. Items returned to the dispensary are now subtracted from the overall consumption rates, which has resulted in the decrease of overall rates by 1.5-2%.
Data Source(s)	Health Protection Surveillance Centre

Indicator	Chronic Benzodiazepine Use in the Community in People Aged 65 Years and Older
Definition	The number of patients aged 65 years and over (per 1,000 eligible patients) who have had a reimbursable prescription for a benzodiazepine or benzodiazepine related medication dispensed for 12 months or more via the Community Drugs Schemes.
Years Covered	National trend: 2013-2021 By CHO/LHO: 2019-2021 OECD: 2020 or nearest year
Classification	Anatomical Therapeutic Chemical (ATC) Classification System
Methodology	**Numerator:** Number of people aged 65 years of age on 1st January the following year with 12 or more individual claim months (under Community Drugs Schemes) the preceding year for benzodiazepines or benzodiazepine related drugs (ATC - N05BA or N05CD or N05CF). For 2018 data onwards also N03AE01. **Denominator:** Number of people aged 65 years or over on 1st January the following year who claimed for prescriptions the preceding year which were dispensed through the General Medical Services (GMS) scheme or the Drugs Payment Scheme (DPS) or the Long-Term Illness Scheme (LTI). The usage over a 12-month period (taking 1st January as the reference point) is based on reimbursable claims made where the number of monthly benzodiazepine or benzodiazepine related prescriptions dispensed was greater than or equal to 12. Calculation of the indicator is based on the number of prescriptions of benzodiazepine or benzodiazepine related medication(s) which are reimbursable by PCRS. One reimbursable prescription is considered to be equivalent to one month's worth of benzodiazepine or related medication for a patient for the purpose of calculation. Internationally most countries report data based on Defined Daily Doses (DDD's). Defined Daily Doses (DDD's) are defined as the assumed average maintenance dose per day for a drug used on its main indication in adults. This is the preferred measure to use when calculating indicators based off pharmacy related databases. Defined Daily Doses (DDD's) were created by the WHO Collaborating Centre for Drug Statistics Methodology. As DDD data on benzodiazepine or benzodiazepine related drug prescribing is not currently available for Ireland, 12 or more individual claim months is used as equivalent to > 365 DDDs. **Exclusions:** This data does not capture items dispensed outside of Community Drug Schemes where the prescription has been paid for privately by the patient or patient representative. This data may not capture claims which are under the Drug Payment Scheme (DPS) monthly threshold amount which has changed over time. The information provided on the indicator is based on claim data which has been received by the Primary Care Reimbursement Service (PCRS) from Community Pharmacists and includes items reimbursed by PCRS only. Patients who are not actively availing of the Long-Term Illness Scheme.
Notes	Figures are subject to change. Changes to the figures over time need to be interpreted in the context of policy changes in Community Drugs Schemes or change in prescribing practice by practitioners. For example, a change in payment threshold in the Drug Payment Scheme will lead to a change in data coverage. Figures cover patients participating in the Community Drug Schemes stated below. The schemes cover patients in a number of different care settings including long-term care settings such as nursing homes. Many OECD countries report information specifically for primary care settings only. Therefore, caution is advised when comparing this indicator against international countries. This indicator refers to benzodiazepine and related medications which include the following: adinazolam, alprazolam, bentazepam, bromazepam, brotizolam, camazepam, chlordiazepoxide, cinolazepam, clobazam, clotiazepam, cloxazolam, diazepam, doxefazepam, estazolam, eszopiclone, ethyl loflazepate, etizolam, fludiazepam, flunitrazepam, flurazepam, halazepam, ketazolam, loprazolam, lorazepam, lorazepam (combinations), lormetazepam, medazepam, midazolam, nitrazepam, nordazepam, oxazepam, pinazepam, potassium clorazepate, prazepam, quazepam, temazepam, tofisopam, triazolam, zaleplon, zolpidem, zopiclone. The Primary Care Reimbursement Service (PCRS) is responsible for reimbursing GPs, Dentists, Pharmacists, Optometrists/Ophthalmologists and other contractors who provide free or reduced-cost services to the public across a range of community health schemes. These schemes form the infrastructure through which the HSE delivers a significant proportion of primary care to the public. The above indicator is based on claims data which are reimbursed by PCRS. This indicator is based on information from patients participating in the following Community Drug Schemes:

Notes contd.	**General Medical Services (GMS)** Persons who are unable without undue hardship to arrange general practitioner medical and surgical services for themselves and their dependants are eligible for the GMS Scheme. Drugs, medicines and appliances approved under the Scheme are provided through Community Pharmacists. In most cases the GP gives a completed prescription form to an eligible person, who takes it to any Pharmacy that has an agreement with the Health Service Executive to dispense drugs, medicines and appliances on presentation of GMS prescription forms. In rural areas a small number of GPs hold contracts to dispense drugs and medications to GMS cardholders who opt to have their medicines dispensed by him/her directly. All GMS claims are processed and paid by the Primary Care Reimbursement Service. Since the 1st October 2010, an eligible person who is supplied a drug, medicine or medical or surgical appliance on the prescription of a Registered Medical Practitioner, Registered Dentist or Registered Nurse Prescriber, is charged a prescription charge by the Community Pharmacy Contractor. For persons under the age of 70 years the prescription charge is €1.50 for each item, up to a maximum of €15 per month, for each person or family. For persons aged over 70 years the prescription charge is €1 for each item, up to a maximum of €10 per month, for each person or family. **Drugs Payment Scheme (DPS)** Under the Drug Payment Scheme, no individual or family pays more than €80 a month (since March 2022) towards the cost of approved prescribed medicines. This threshold has decreased in recent years, from €134 in 2018. As the threshold has changed the number of patients eligible for reimbursement has also changed. In order to avail of the Drugs Payment Scheme a person or family must register for the Scheme with the HSE PCRS. Drugs, medicines and appliances currently reimbursable under the Scheme are listed on the HSE website. **Long-Term Illness Scheme (LTI)** On approval by the Health Service Executive, persons who suffer from one or more of a schedule of 16 illnesses are entitled to obtain, without charge, irrespective of income, necessary drugs/medicines and/or appliances under the LTI Scheme.
Data Source(s)	Primary Care Reimbursement Service OECD Health Statistics



Appendix

Appendix 1: Membership of NHQRS Governance Committee and Technical Group

NHQRS Governance Committee Members

Ms Rosarie Lynch (Chair)	Head of Clinical Effectiveness and Antimicrobial Resistance, National Patient Safety Office, Department of Health
Ms Rachel Kenna (Acting Chair)*	Chief Nursing Officer, Department of Health
Ms Margaret Brennan	HSE - Acute Operations
Mr Alan Cahill	Statistics and Analytics Unit, Department of Health
Mr Ian Carter	Hospital Groups
Mr Andy Conlon	Acute Hospitals Division, Department of Health
Dr Eibhlín Connolly	Office of the Chief Medical Officer
Ms Breda Crehan Roche	HSE - Community Healthcare Organisations
Ms Brigid Doherty	Patient/Public Representative
Ms Naomi Fitzgibbon	Patient/Public Representative
Ms Rachel Flynn	Health Information and Quality Authority
Ms Karen Greene	Office of the Chief Nursing Officer
Dr Lorraine Horgan	Health and Social Care Regulatory Forum
Mr Gary Kiernan	Mental Health Commission
Mr Richard Lodge	Pre-Hospital Emergency Care Council
Dr Jennifer Martin	HSE – Quality and Patient Safety Directorate
Dr Deirdre Mulholland	HSE- Departments of Public Health
Ms Deirdre Murphy**	HSE - Healthcare Pricing Office
Ms Helen Nolan**	HSE - Healthcare Pricing Office
Dr Cathal O'Keeffe	State Claims Agency
Dr Brian Osborne	Irish College of General Practitioners

* Rachel Kenna was Acting Chair for one meeting on 29 June 2022.
** Helen Nolan replaced Deirdre Murphy in June 2022.

Secretariat:

Ms Ailbhe Dowling	National Patient Safety Office
Ms Orla Ebbs	National Patient Safety Office
Ms Deirdre Hyland	National Patient Safety Office
Ms Pauline White	Statistics and Analytics Unit

Technical Group Members

Dr Mary McGeown (Chair)	National Patient Safety Office, Department of Health
Mr Gareth Clifford*	HSE - Acute Operations
Ms Áine Clyne	HSE - Community Operations
Ms Grainne Cosgrove	HSE - Quality and Patient Safety Directorate
Ms Jacqui Curly	HSE - Healthcare Pricing Office
Dr Susana Frost***	HSE – Health Protection Surveillance Centre
Dr Sarah Gee***	HSE – Health Protection Surveillance Centre
Ms Deirdre Hyland	National Patient Safety Office, Department of Health
Ms Fionnola Kelly	National Office of Clinical Audit
Mr Ivan McConkey**	HSE - Primary Care Reimbursement Service
Ms Lauren Webster***	HSE – Antimicrobial Resistance & Infection Control Team
Ms Pauline White	Statistics and Analytics Unit
Mr Martin Woods	Performance Management Unit, Department of Health

* Until April 2022.
** Until March 2022.
*** Joined in June 2022.

An Roinn Sláinte
Department of Health

www.health.gov.ie