An Roinn Sláinte
Department of Health

National Healthcare Quality Reporting System

Annual Report 2019

Prepared by the National Patient Safety Office

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

The NPSO has three workstreams which together interface to create a co-ordinated approach to patient safety in health policy.
These are:
- Patient Safety Surveillance
- Patient Safety Advocacy and Policy
- Clinical Effectiveness

This report now forms part of the patient safety surveillance work stream of the NPSO. This surveillance system is under development and is likely to include, although not be limited to, elements on clinical activity, healthcare acquired conditions, clinical outcomes, complaints trends, and information from a number of other sources.

Information on the work of the NPSO and Patient Safety Surveillance is available from https://health.gov.ie/national-patient-safety-office/patient-safety-surveillance/

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NATIONAL HEALTHCARE QUALITY REPORTING SYSTEM 2019

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Minister's Foreword

I welcome the publication of this year's National Healthcare Quality Reporting System (NHQRS) by my Department. The 5th annual report of the NHQRS is an example of this Government's commitment to ensuring that our health services provide safer and better healthcare to all, by benchmarking the performance of our health service year-on-year and against international standards.

Once again this year the NHQRS Report has expanded the range of indicators to measure and report on the overall quality of our health service. This year's report includes new information on lung cancer survival rates, CPE and benzodiazepine medicine use in people aged 65 years and older.

I am delighted to see that this year's report shows a number of areas where our health services are performing well. While there is undoubtedly more to do, I am encouraged to see that the number of people hospitalised for asthma and heart failure are below international averages. I am also heartened to see that the number of people availing of bowel cancer screening is increasing. Over the last decade, the percentage of people with broken their hips receiving surgery within 48 hours of hospital admission has been increasing and is the highest it has ever been. The mortality rate for heart attack and stroke continues to decrease year on year for the past 10 years. These outcomes are significant achievements in our health service but more importantly have a real life impact for patients.

However, the report also shows a number of areas where we could improve. Our national uptake of the MMR and Meningitis C vaccines are below target. I am very committed to addressing vaccination hesitancy, as it is one of the greatest threats to public health today. The report also shows that antibiotics usage in our hospitals remains high. Using fewer antibiotics will help preserve their effectiveness for future generations of patients and consequently tackling antimicrobial resistance continues to be a priority for this Government. One of the new indicators published for the first time this year in the NHQRS relates to the chronic usage of benzodiazepine medicines in people aged 65 years and older. The data shows that chronic benzodiazepine usage in Ireland is higher than international averages. Publishing this data in the NHQRS will bring a strong focus to this issue, and will be used by the HSE, health professionals and organisations across the health service as a source of information to identify examples of good practice which can be replicated with a view to improving the safety and quality of our health services.

I appreciate the contributions of all of those involved in this report's development. In particular, I thank the patient representatives and the various health care providers and organisations who sit on the Governance Committee and Technical Group. I firmly believe that the transparent and regular reporting of information on the performance of our health service, by means of the NHQRS, 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.

Simon Harris TD
Minister for Health

Secretary General's Foreword

The National Healthcare Quality Reporting System (NHQRS) is a part of the evolution of the Department of Health's patient safety and quality work. This is the fifth annual publication of this report and we can now see and reflect on progress in our health system using the data presented in this report and previous reports.

As a publicly available report the NHQRS is important in demonstrating the quality of Irish healthcare to people around the country and the world. Objectively evaluating the structures, processes and outcome measures of the health service is very important. Without information and data, there is no reliable way to assess how our health service is performing. Understanding data and variation in that data is a cornerstone of the science of improvement. The information in this report shows where our service is performing well and gives direction on where to target quality improvement efforts.

The annual NHQRS report has now been published for five annual cycles. I am delighted to see that our mortality rates for stroke and heart attacks are better than OECD averages and have been declining for several years now. This indicates that we are performing well in these areas. Encouragingly, heart failure and asthma hospitalisation rates have also been falling for the past number of years.

The report also shows areas where there is room for improvement. It is disappointing that national influenza vaccination rates for both those over 65 years and for healthcare workers are not reaching our target rate. Our hospitalisation rates for COPD continue to show scope for major improvement. The number of Caesarean sections continues to increase and is deviating further from the OECD average rate. Use of benzodiazepine medicines in those over 65 years of age, particularly in women, is higher than known international averages. While the causes for these gaps are undoubtedly multifactorial, this report serves to highlight them to healthcare providers and policy makers.

The publication of this report is not the end of this process. Quality improvement must be continuous and requires the engagement of everyone within the health service. This report is a tool for health service providers and policy makers to evaluate their services systematically and inform quality improvement initiatives. The insights that this report provides should be used constructively to improve our health services year on year. This is especially important as we move towards a more integrated health system, as envisioned under Sláintecare; one that is better designed to address the weaknesses identified in this report.

The development of this publication is coordinated by the Patient Safety Surveillance Unit in the National Patient Safety Office in collaboration with the Statistics and Analytics Unit in the Department of Health. I thank the Governance Committee and the Technical Group for their time and efforts in developing this year's report. The Department of Health looks forward to working in partnership with the members of these groups in the years to come as the report continues to describe the quality of our health service.

Jim Breslin
Secretary General
Department of Health

Executive Summary

This reports publicly gives 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 National Healthcare Quality Reporting System (NHQRS) aims to provide a mechanism through which data about 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. Indicators are presented to allow for comparisons between regions, nationally, internationally and over time.

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 NHQRS has evolved over time, including additional indicators as datasets within the Irish health service mature and become available. Annually, the NHQRS Governance Committee and Technical Group engage in an exercise deigned to ensure the validity, timeliness and accuracy of indicator data. This year's report includes 38 indicators of performance across five key domains.

We can see improvements in hospitalisation rates for chronic conditions such as asthma and heart failure. We have also met our national targets for bowel cancer screening and time to surgery for patients who have broken their hips. Our mortality rates for heart attack and stroke continue to fall and are the best we have seen in ten years. Significant improvements have also been seen in our cancer screening and treatment and we are on par with international averages. Our management of healthcare associated infections is improving. This is good news, as it will help preserve the effectiveness of antibiotics for future generations of patients. 84% of patients reported that they felt they were definitely treated with dignity and respect during their stay in hospital.

There is also room for improvement in some areas. The flu vaccine uptake for our population aged over 65 years has not yet achieved the target rate. Our caesarean section rates continues to rise year on year and is above the OECD average. Our national chronic use of benzodiazepine medications in people aged 65 years and older in the community is high compared with international averages and we can see that more women than men are taking them. Our antibiotic use in hospitals continues to rise. Many patients reported that they did not feel they received the emotional support they needed while being cared for in our hospitals.

This fifth annual 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 four indicators were added for the first time or changed in the way they were presented. These included indicators in the areas of cancer survival rates, medication safety and healthcare associated infections.

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.

PERFORMING WELL

More than **50%**

of people eligible gave their views on their hospital stay in the National Patient Experience Survey.

Mortality rates for the most common type of stroke have fallen to their lowest levels ever.

Hospitalisation rates for asthma and heart failure are below international averages.

84%

of patients said that they felt they were treated with dignity and respect while in hospital.

Staphylococcus aureus rates have decreased over the past 10 years.

We are screening more patients for the superbug, CPE.

51%

of eligible people were screened for bowel cancer.

86%

of people with hip fractures received surgery within two days of hospital admission.

How Ireland compares to OECD averages:

	Ireland	OECD
Breast Cancer Survival	84%	85%
Cervical Cancer Survival	62%	62%
Colon Cancer Survival	61%	62%

ROOM FOR IMPROVEMENT

Antibiotic use in Irish hospitals has increased for the past three years.

Only **39%**

of healthcare workers got their flu vaccine.

Flu vaccine uptake rates for people over 65 years remain below target.

0

No region in Ireland met the national target rate for Meningitis C vaccination.

Benzodiazepine medicine use in women over 65 years is 40% higher than in men.

Only **35%**

of patients said that they definitely got enough emotional support while in hospital.

More people with diabetes are being admitted to hospital.

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	*Clostridium difficile* infection
C. difficile	*Clostridium 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-9-CM	The International Classification of Diseases, Ninth Revision, Clinical Modification. A system of assigning codes to diagnoses and procedure

ICD-10-AM/ ACHI	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision - Australian Modification and the Australian Classification of Health Interventions. Classification systems that allows all medical conditions and procedures to be assigned clinical codes.
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*
NCEC	National Clinical Effectiveness Committee
NCRI	National Cancer Registry Ireland
NHS	National Health Service
NHQRS	National Healthcare Quality Reporting System
NPES	National Patient Experience Survey
NPSO	National Patient Safety Office
NPRS	National Perinatal Reporting System
OECD	Organisation for Economic Co-operation and Development. A group of 34 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 assessment to be chiefly responsible for occasioning the episode of admitted patient care.
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 Organisation
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 fifth annual 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 website: https://health.gov.ie/national-patient-safety-office/patient-safety-surveillance/national-healthcare-quality-reporting-system/

The primary objective of the NHQRS is to provide publicly available information on the quality of healthcare. This in turn should inform and support decision-making by patients, policy makers and service providers.

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 [1].

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 Indicators. 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 experience healthcare in acute hospital settings is now collected through the National Patient Experience Survey (NPES), which is planned to be expanded to include other healthcare settings including maternity services in future survey cycles. 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.

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 annual 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.

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 fourth annual 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 an annual report to the Minister for Health. Committee members facilitate communication between their own organisations in relation to the NHQRS processes and the annual report.

The membership of this governance committee is set out in appendix 1. The committee is supported by a technical group (see appendix 2). 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 Patient Safety Surveillance Unit in the NPSO.

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 single measure that is reported on regularly and that provides relevant and actionable information about population health and/or health system performance and characteristics" [2].

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 [3].

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 [4], the Agency for Healthcare Research and Quality (AHRQ) [5], the Swedish Regional Comparisons [6], and also the OECD framework for health system performance assessment [7].

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 annual 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 2019 annual 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, each year 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 38 included indicators are grouped under 5 quality domains as shown in Table 1.

The indicator: Primary percutaneous coronary intervention for acute myocardial infarction/heart attack was flagged for inclusion in 2016, but was withdrawn from Domain 4: Supporting people to have positive experiences of healthcare after the annual screening exercise as the data is not available from HIPE. Following the evaluation and selection process, new indicators were selected or changed under the following domains:

Domain 3:

- Lung cancer survival rates

Domain 5

- *Staphylococcal aureus* and Methicillin resistant *Staphylococcal aureus* (MRSA) blood stream infection rates
- Carbapenemase-producing *Enterobacteriales*
- Chronic benzodiazepine usage in the community in people aged 65 years and over

Table 1: Indicators in the Annual 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
4. Supporting people to have positive experiences of healthcare	**National Patient Experience Survey** • Overall rating of 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
5. Treating and caring for people in a safe environment	**Healthcare associated infection rates** • *Staphylococcal aureus* and Methicillin resistant *Staphylococcal aureus* (MRSA) blood stream infection rates • *Clostridium Difficile (C. difficile)* 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

Table 2: Indicators by domain and their data sources

	Indicators	HPSC	OECD	NSS	HIPE	NCRI	NPRS	EARS-Net	EARC-Net	NPES	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	EARC-Net	NPES	PCRS
DOMAIN 4	Overall Rating of Experience									•	
	Patient 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									•	
DOMAIN 5	Methicillin-resistant *Staphylococcal Aureus* (MRSA) rates	•						•			
	Clostridium 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 and Table 2 also refers:

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 Patient Experience Survey
The National Patient Experience Survey is a nationwide survey asking adult patients for feedback about their stay in acute hospital. The survey is a partnership between 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). Wherever possible, information using both geographic groupings has been used.

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.

1

Domain 1: Helping people to stay healthy and well

Immunisation rates:

- Immunisation rate for MMR vaccine 27
- Immunisation rate for Men C vaccine 30
- Immunisation rate against influenza for persons aged 65 years or older 33
- Immunisation rate against influenza among healthcare workers in hospitals 35
- Immunisation rate for human papillomavirus (HPV) vaccine 39

Cancer screening rates:

- Screening uptake rate for breast cancer 43
- Screening uptake rate for cervical cancer 47
- Screening uptake rate for colorectal cancer 51

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 2 to 3 million deaths are prevented every year through immunisation. Nonetheless, the WHO also estimates that vaccine preventable diseases are still responsible for 1.5 million deaths each year (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' or 'herd protection'. 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 Interventions 3.4 of iNAP, Ireland's National Action Plan on Antimicrobial Resistance 2017 – 2020.

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 and influenza are all notifiable.

The 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.

Screening for cancer helps prevent significant illness and death by detecting cancer at an earlier and therefore, more treatable stage. Screening is different from most other forms of healthcare and there is often uncertainty about its purpose. Screening is not a diagnostic tool; its purpose is risk reduction. Cancer screening uptake rates are an important measure of the performance and quality 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 quality 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.

Immunisation rate for MMR vaccine

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

Description
The MMR vaccine protects people against measles, mumps and rubella (also called German measles). These are highly infectious, viral childhood 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 given in Ireland. The first dose is given at 12 months of age and the second dose is given at 4 to 5 years of age (2). In recent years, an anti-vaccine campaign has been covered in the media. 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'. In 2018, an outbreak of measles affected at least 85 people across Ireland; of those who were eligible for vaccination (all of those 12 months of age or older), 72% had not been vaccinated (3). Measles outbreaks were reported in a number of European countries including Romania, Italy, France and Greece in 2018 (4).

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. But the threat of outbreaks persists as long as there are immunity gaps within the population.

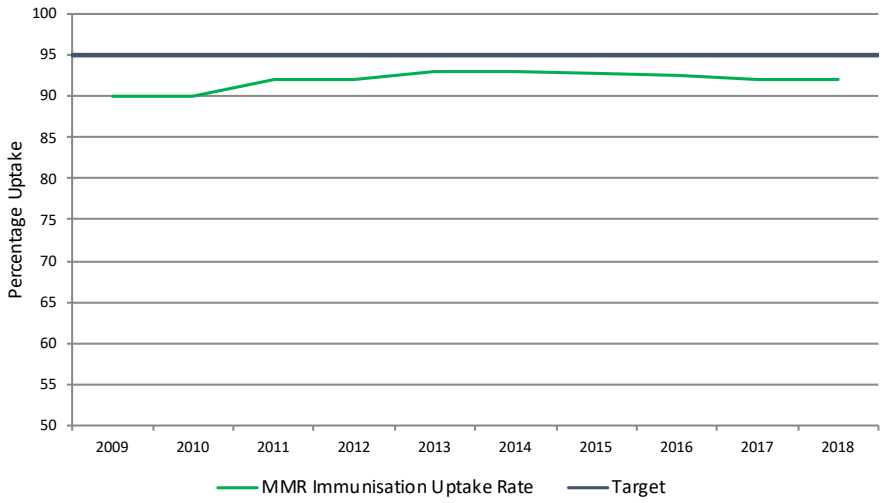
Rationale for the inclusion of indicator
Over 12,000 cases of measles were reported in Europe in 2017 (4).

The number of identified cases of measles has been increasing in recent years. Ireland has experienced a number of regional outbreaks since 2016. As of June 2019, 60 cases have been identified in 2019, as compared to 76 for the year 2018.

Notes on Measurement Changes for the MMR Vaccine
Please note that the map presented in previous NHQRS reports presented MMR immunisation rates by local health office. This information is still available in the Table 3. The map is now presented on community health organisation basis.

Commentary
- The national immunisation uptake of MMR for children at 24 months of age from 2009 to 2018. Although the national target of 95% has not been achieved, the national immunisation rate increased over the ten year period by 3%, from 89% in 2008 to 92% in 2017.
- For 2016, 2017 and 2018 the MMR vaccine uptake rate remained static at 92%. This requires ongoing review to ensure vaccine confidence is maintained.
- While most Community Health Organisations were close to meeting the target, no CHO met the target in 2018. The Local Health Office with the highest uptake was Roscommon (96%) and the lowest uptake was in Wicklow (84%). In total, only 9 of 32 local health offices met the 95% target.

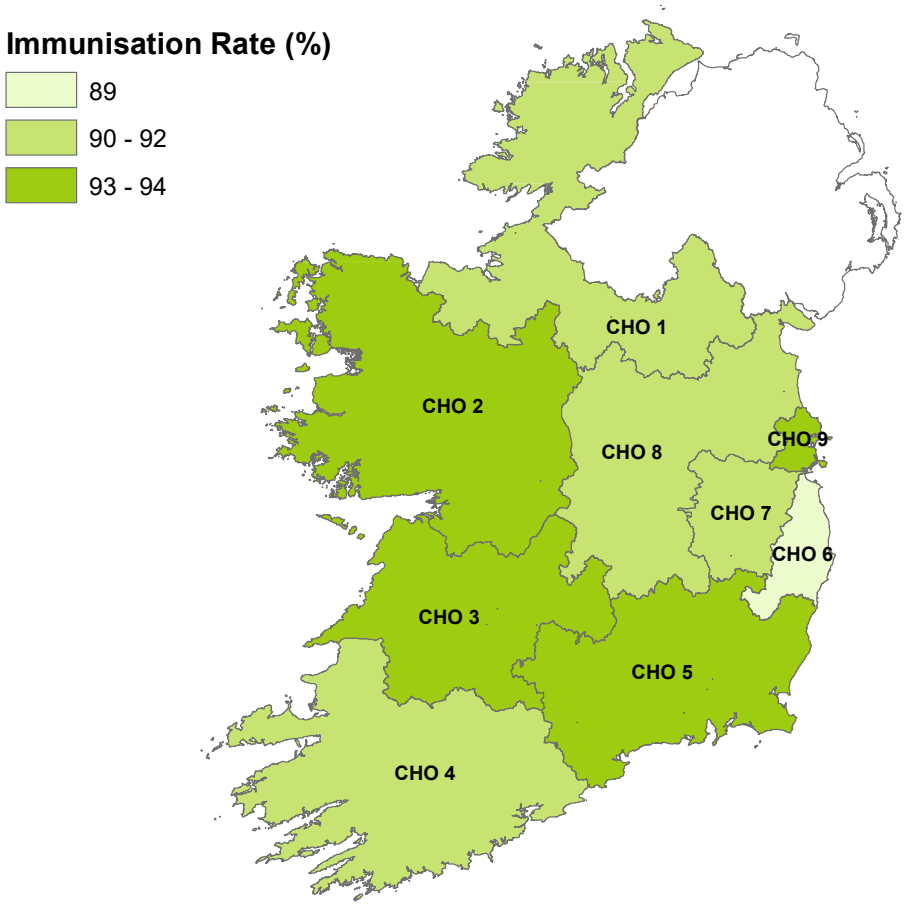
Figure 1: Immunisation rate for MMR for children at 24 months, percentage uptake, 2009 – 2018



Source: Health Protection Surveillance Centre (HPSC)
Notes:
(i) The data for 2009 and 2010 are incomplete as data for some regions were unavailable.
(ii) The immunisation uptake data above relate to children who have reached their second birthday and have received one dose of the vaccine

Figure 2: Immunisation rate for MMR for children at 24 months by Community Health Organisation, 2018

The target for MMR immunisation rates for children at 24 months is 95%.



Source: Health Protection Surveillance Centre (HPSC)
Note:
(i) The immunisation uptake data above relate to children who have reached their second birthday and have received one dose of the vaccine.

Table 3: Immunisation rate for MMR for children at 24 months by Local Health Office and Community Health Organisation, 2018

Community Health Organisation	Local Health Office	MMR Uptake Rate 2018 %
CHO 1	Cavan/Monaghan	92
	Donegal	89
	Sligo/Leitrim	95
	CHO 1 Total	**92**
CHO 2	Galway	95
	Mayo	92
	Roscommon	96
	CHO 2 Total	**94**
CHO 3	Clare	94
	Limerick	91
	Tipperary NR/East Limerick	95
	CHO 3 Total	**93**
CHO 4	North Cork	94
	North South Lee	93
	West Cork	90
	Kerry	91
	CHO 4 Total	**92**
CHO 5	Carlow/Kilkenny	92
	South Tipperary	95
	Waterford	93
	Wexford	93
	CHO 5 Total	**93**
CHO 6	Dublin South	92
	Dublin South East	93
	Wicklow	84
	CHO 6 Total	**89**
CHO 7	Dublin South City	89
	Dublin South West	95
	Dublin West	87
	Kildare/West Wicklow	92
	CHO 7 Total	**91**
CHO 8	Laois/Offaly	94
	Longford/Westmeath	95
	Louth[i]	90
	Meath[i]	90
	CHO 8 Total	**92**
CHO 9	Dublin North West	95
	Dublin North Central	95
	Dublin North	89
	CHO 9 Total	**93**
National Average		**92**

Source: Health Protection Surveillance Centre (HPSC)
Notes:
i. 2018 data for Louth and Meath not available. 2017 figures used here
ii. Due to incomplete data coverage, the national average is based on data from the first three quarters of 2018.
iii. The immunisation uptake data above relate to children who have reached their second birthday and have received one dose of the vaccine.

Immunisation rate for Meningococcal C Vaccine

Definition
Percentage of children who have received two doses of the Meningococcal C (MenC) vaccine by 24 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 C ('MenC') is one of several different types of meningococcal bacteria.

As of July 2015, the current recommended schedule has changed to 2 doses of MenC vaccine at 4 months and 13 months with a further booster in first year of second level school (age 12-13 years) (5). The national target for uptake of the three doses is 95%, which is in line with international targets.

Rationale for 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
Up to July 2015 the vaccine schedule for babies in Ireland consisted of three doses of MenC vaccine at 4 months, 6 months and 13 months of age [11]. The updated recommended schedule has changed to 2 doses of MenC vaccine at 4 months and 13 months with a further booster in first year of second level school (age 12-13 years)

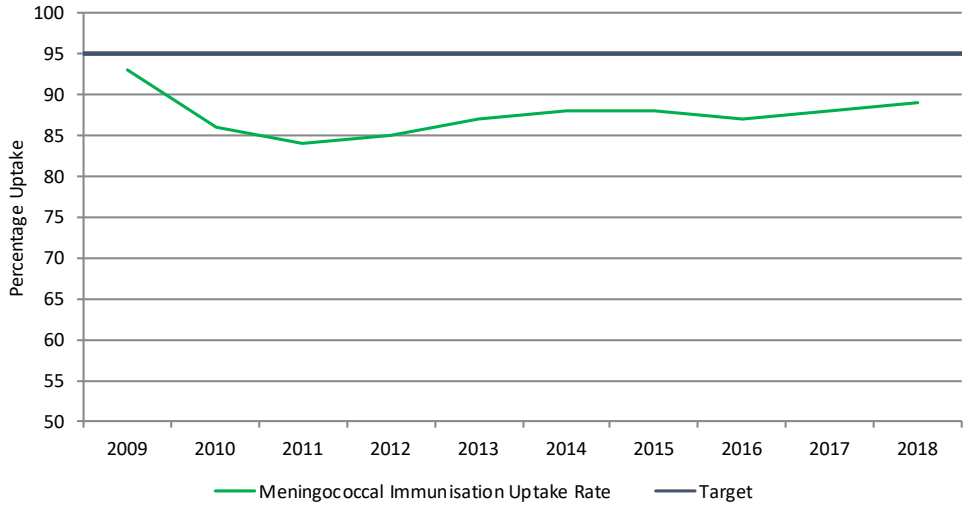
Please note in previous NHQRS Reports, the map presented for this indicator was presented MenC immunisation rates by local health office. This information is still available in the Table 4. The map is now presented on community health organisation basis.

Commentary
- Although national uptake rates increased to a peak of 93% in 2009 this was not sustained and the national immunisation rate for the third dose of MenC vaccine decreased from 2009 to 2015. After the vaccine schedule was changes, the vaccination uptake rate has been between 87% and 89%. 2018 saw the highest uptake rate since this schedule change took place from 93% in 2009 to 89% in 2018. The 85% in 2018 is the highest rate seen since 2009.

- In July 2008, the childhood immunisation schedule was changed resulting in a change of timing of MenC vaccine from 2, 4, 6 months to 4, 6, 13 months. This meant an additional visit to the GP at 13 months of age. This resulted in a large decline in reported uptake of the third dose of MenC from 2010. Research showed that most parents did not know their children were incompletely vaccinated and were unaware that their children required an additional dose of vaccine at 13 months of age. Further exploration into ways to increase uptake per the updated immunisation schedule and reach the 95% target are required to ensure that vaccine confidence is maintained at a population level.

- No Local Health Office or Community Health Organisation area achieved the National Target (95%). The Roscommon Local Health Office had the highest uptake rate (94%) and Wicklow had the lowest (82%). The reasons for the variation seen between areas require further investigation.

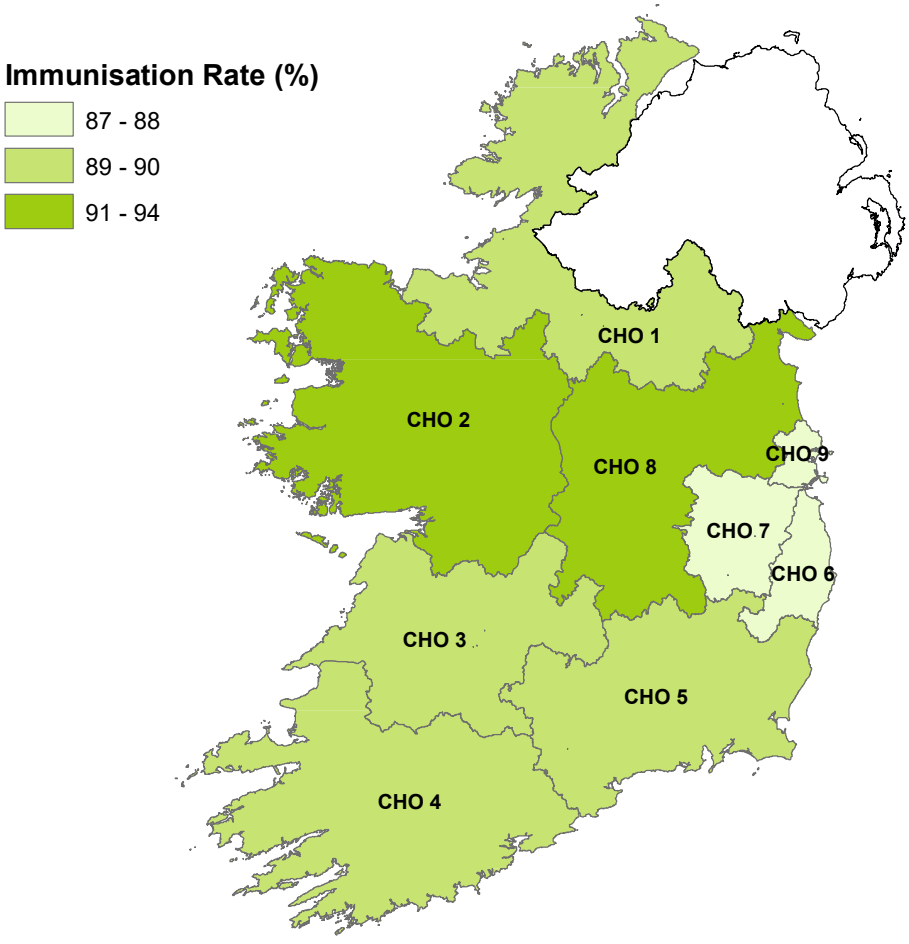
Figure 3: Immunisation rate for MenC for children at 24 months, percentage uptake, 2009 – 2018



Source: Health Protection Surveillance Centre (HPSC)
Notes:
(i) The data for 2009 and 2010 are incomplete as data for some regions were incomplete.
(ii) From 2015, the meningococcal immunisation schedule was changed. Caution is advised when comparing 2015 data to previous years.

Figure 4: Immunisation rate for MenC for children at 24 months by Community Health Organisation, 2018

The target for MenC immunisation rates for children at 24 months is 95%.



Source: Health Protection Surveillance Centre (HPSC)

Table 4: Immunisation rate for MenC for children at 24 months by Local Health Office and Community Health Organisation, 2018

Community Health Organisation	Local Health Office	MenC Uptake Rate 2018 %
CHO 1	Cavan/Monaghan[i]	84
	Donegal	85
	Sligo/Leitrim	92
	CHO 1 Total	**89**
CHO 2	Galway	92
	Mayo	94
	Roscommon	94
	CHO 2 Total	**93**
CHO 3	Clare	91
	Limerick	89
	Tipperary NR/East Limerick	90
	CHO 3 Total	**90**
CHO 4	North Cork	92
	North South Lee	88
	West Cork	85
	Kerry	89
	CHO 4 Total	**89**
CHO 5	Carlow/Kilkenny	86
	South Tipperary	92
	Waterford	89
	Wexford	91
	CHO 5 Total	**90**
CHO 6	Dublin South	90
	Dublin South East	91
	Wicklow	82
	CHO 6 Total	**88**
CHO 7	Dublin South City	89
	Dublin South West	86
	Dublin West	85
	Kildare/West Wicklow	87
	CHO 7 Total	**87**
CHO 8	Laois/Offaly	93
	Longford/Westmeath	94
	Louth[i]	83
	Meath[i]	84
	CHO 8 Total	**94**
CHO 9	Dublin North West	89
	Dublin North Central	89
	Dublin North	85
	CHO 9 Total	**88**
National Average		**89**

Source: Health Protection Surveillance Centre

Notes:
i. 2018 data for Cavan/Monaghan, Louth and Meath not available, 2017 figures used here
ii. Due to incomplete data coverage, the national average is based on data from the first three quarters of 2018.

Immunisation for influenza for persons aged 65 years and older

Definition

Percentage of people 65 years and older with a medical card or GP visit card, who have been vaccinated against influenza.

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 [14,15]. 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 [16]. In Ireland the target for influenza vaccination in the population group aged 65 years and older is 75%.

It is recommended that other vulnerable patients such as pregnant women and those with long term health conditions are also be vaccinated.

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 2017-2018 refers to the vaccination uptake between September 2016 and April 2017. This provides a more accurate measurement for each flu 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 [13]. It has been estimated that between 200 and 500 people, mainly older people, die from influenza each winter in Ireland. The HPSC reports that 4,680 patients were hospitalized with confirmed influenza during the 2017/2018 influenza season.

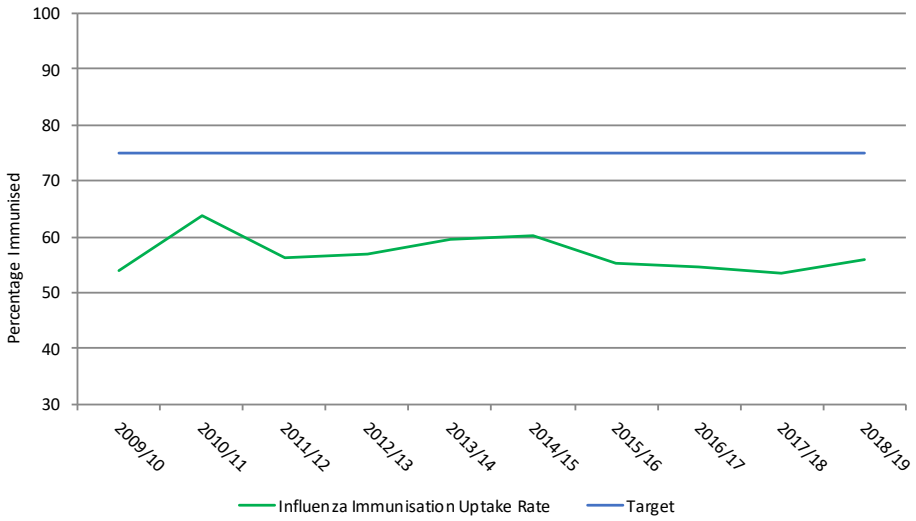
Commentary

- The national trend data shows that the target of 75% has not been reached. The uptake rate over the past four years has not exceeded 60%. Provisional data for the 2018/2019 season (uptake to the end of December 2019) suggests that uptake was approximately 56%.

- It is notable that the vaccination rate among the 65 year and older population fluctuated significantly in the flu season between 2009/2010 and 2011/2012 but has become more stable in recent years.

- Ireland's failure to meet its national target notwithstanding, figure 6 shows Ireland's uptake rate of 55% was above the average rate for OECD countries, 44% (2015 is the latest year for which OECD data is available).

Figure 5: Percentage of influenza immunisation uptake in the population 65 years and older with a medical card or GP visit card, 2009/2010-2018/2019

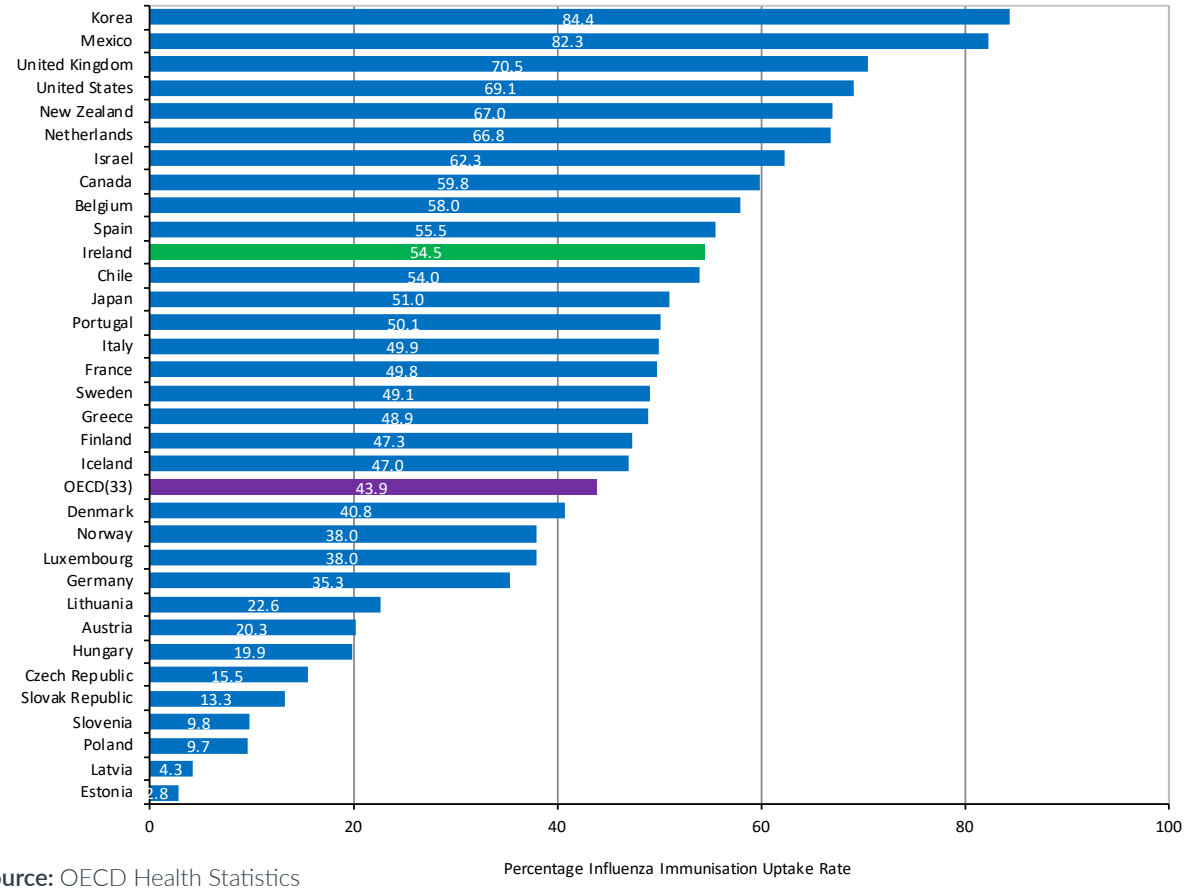


Source: Health Protection Surveillance Centre (HPSC)

Note: Data for 2018/19 cover September - December 2018 due to incomplete data.
See appendix for detailed indicator definitions and methodology.

Figure 6: Immunisation for influenza in populations over 65 for selected OECD countries, 2016 (or nearest year)

The World Health Organisation target influenza immunisation uptake rate for at risk groups including people aged 65 years and older is ≥ 75%.



Source: OECD Health Statistics

Note: Data for Ireland are estimated.
Differences in coding practices and defintions among countries may affect the comparability of data.
See appendix for detailed indicator definitions and methodology.

Immunisation rate for influenza among healthcare workers in hospitals

Definition

Percentage of healthcare workers (HCWs) in hospitals, 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 [13]. 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. It has been estimated also have a major impact on health services particularly during the winter season.

Every year influenza vaccine is offered to healthcare workers both to protect themselves and to prevent the spread of flu to vulnerable patients and to staff. At least 20% of healthcare workers are infected with influenza every year and many healthcare workers 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 healthcare workers [17].

Vaccination of healthcare workers has been shown to reduce flu-related deaths by up to 40%. The HSE aims to achieve a target of 40% 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 2016-2017 refers to the vaccination uptake between September 2016 and April 2017.

Rationale for the inclusion of indicator

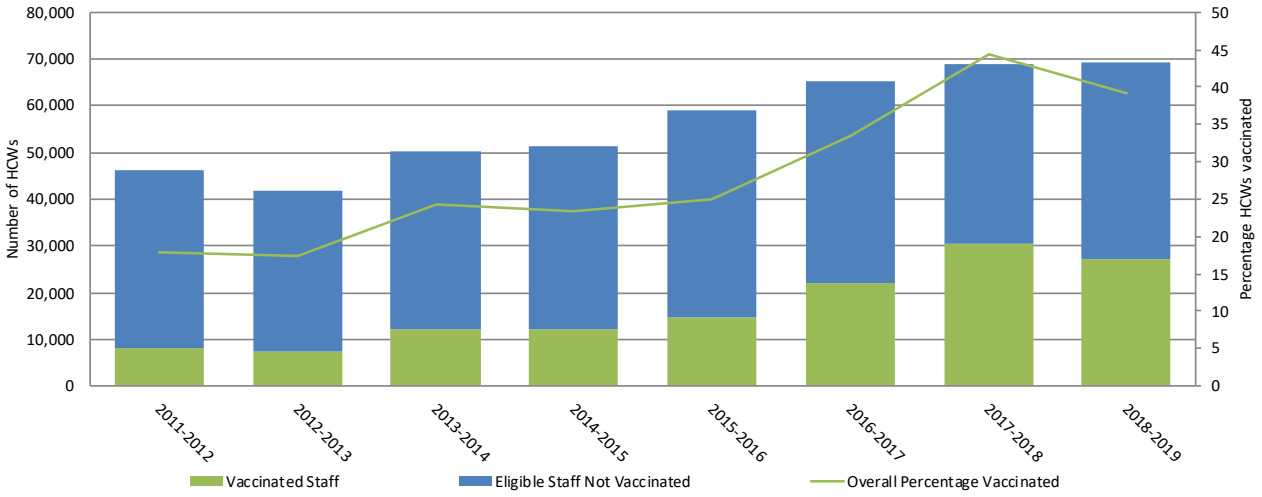
Influenza represents a large burden of disease worldwide and in Ireland. As people who would have regular contact with vulnerable populations, HCWs are at greater risk for infection and exposure. Influenza is a common infectious disease that affects between 5% and 15% of the population each year worldwide [13]. It has been estimated that between 200 and 500 people, mainly older people, die from influenza each winter in Ireland. The HPSC reports that 4594 patients were hospitalised with confirmed influenza during the 2017/2018 influenza season.

Commentary

- Figure 7 shows the trend in immunisation rates against influenza among HCWs in participating hospitals over the past 8 years. In 2018/2019, 52 hospitals (including 4 private hospitals) participated in this survey.
- The percentage of vaccinated healthcare workers was just over 39%. This is slightly decreased from last year's vaccination rate of 44%. This drop may be due to higher than average immunisation rates last year (2017/2018 season). These higher than average rates may have been due to the perceived virulence of the strains of influenza circulating last year.
- Uptake varied according to staff category (Figure 8); while 53% of medical and dental staff availed of the vaccine, just 36% of nursing staff did so. It is notable that the majority of staff categories increased their flu vaccine uptake rate as compared to last year.
- Table 5 shows the immunisation rate against influenza among HCWs in the 51 participating hospitals for the 2018/2019 'flu season. Uptake varied substantially across these hospitals. 35 of the 52 hospitals exceeded the 40% target. In particular, the Children's Hospital Group achieved over 50% immunisation rate.

Figure 7: Immunisation for influenza among healthcare workers in hospitals 2011/12 – 2018/2019

The target influenza immunisation uptake rate for healthcare workers is ≥ 40%.

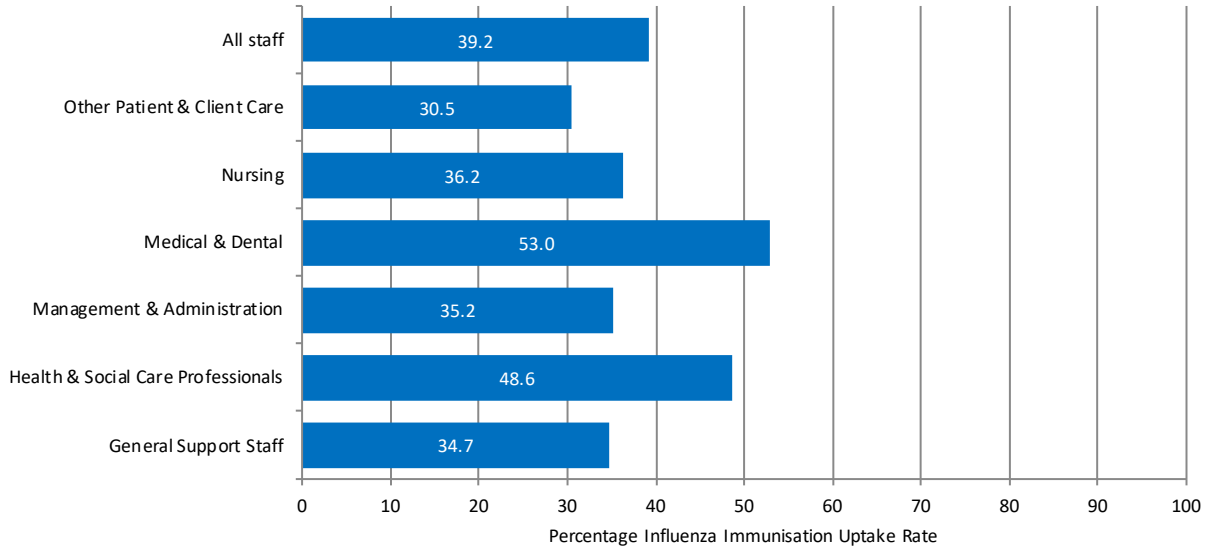


Source: Health Protection Surveillance Centre (HPSC)

Notes:
(i) Data for 2018-2019 includes returns for 4 private hospitals.
(ii) Data for 2018-2019 are provisional and subject to change.
See appendix for detailed indicator definitions and methodology.

Figure 8: Immunisation for influenza among healthcare workers by staff category in HSE-funded hospitals, 2018/2019

The target influenza immunisation uptake rate for healthcare workers is ≥ 40%.



Source: Health Protection Surveillance Centre

Notes:
(i) Data for 2018-2019 includes returns for 4 private hospitals.
(ii) Data for 2018-2019 are provisional and subject to change.
See appendix for detailed indicator definitions and methodology.

Table 5: Immunisation for influenza among healthcare workers in hospitals by hospital group and hospital, 2018/2019

Hospital Group	Total Eligible	% Uptake
Ireland East	**13,396**	**42.0**
Cappagh National Orthopaedic Hospital, Dublin	513	36.8
Mater Misericordiae University Hospital	3,529	40.1
Midland Regional Hospital Mullingar	1,000	51.1
National Maternity Hospital, Holles Street	914	60.7
National Rehabilitation Hospital, Dún Laoghaire, Co. Dublin	487	55.0
Our Lady's Hospital, Navan	593	49.7
Royal Victoria Eye & Ear Hospital, Dublin	318	49.4
St. Luke's General Hospital, Kilkenny	1,281	45.2
St. Michael's Hospital, Dun Laoghaire	440	50.0
St. Vincent's University Hospital	3,271	29.8
Wexford General Hospital	1,050	44.0
Dublin Midlands	**12,603**	**43.0**
Tallaght Hospital	3,192	59.4
Coombe Women's Hospital	960	54.1
Midland Regional Hospital Portlaoise	825	44.7
Midland Regional Hospital Tullamore	1,192	36.1
Naas General Hospital	819	35.3
St. James's Hospital	5,073	31.8
St. Luke's Hospital, Dublin	542	55.4
RCSI Hospitals	**10,163**	**50.5**
Beaumont Hospital	3,869	50.9
Connolly Hospital, Blanchardstown	1,401	37.3
Louth County Hospital, Dundalk	346	50.9
Our Lady Of Lourdes Hospital, Drogheda	2,320	56.3
Rotunda Hospital	895	68.4
Cavan General Hospital	1,087	41.1
Monaghan General Hospital	245	42.9
UL Hospitals	**4,860**	**26.9**
Croom Orthopaedic Hospital	179	27.4
Ennis Hospital	252	23.4
Nenagh Hospital	269	38.3
St. John's Hospital, Limerick	642	29.1
University Hospital Limerick	3,090	25.9
University Maternity Hospital Limerick	428	25.2
South / South West	**12,146**	**34.8**
Bantry General Hospital	297	36.0
Cork University Hospital	4,591	75.9
Lourdes Orthopaedic Hospital, Kilcreene, Kilkenny	81	11.1
Mallow General Hospital	269	48.7
Mercy University Hospital, Cork	1,321	40.3
South Infirmary - Victoria University Hospital, Cork	989	23.7
South Tipperary General Hospital, Clonmel	1,034	26.3
University Hospital Kerry	1,266	21.3
University Hospital Waterford	2,296	37.5

Table 5 contd.

Hospital Group	Total Eligible	% Uptake
Saolta	**10,221**	**24.4**
Letterkenny General Hospital	1,814	15.7
Mayo General Hospital, Castlebar	1,288	21.0
Portiuncula Hospital, Ballinasloe	916	32.6
Roscommon County Hospital	356	25.8
Sligo General Hospital	1,832	27.0
University College Hospital Galway	4,015	26.1
Children's Health Ireland	**3,520**	**56.6**
Children's University Hospital, Temple Street	1,406	61.2
Our Lady's Hospital for Children, Crumlin	2,114	53.5
Other	**2,248**	**41.5**
Aut Even Hospital, Freshford Road, Kilkenny	311	30.5
Bon Secours Hospital, Glasnevin, Dublin	598	34.1
Bon Secours Hospital, Cork	1,116	50.7
Clontarf Hospital, Dublin	223	30.9
Total for All Hospitals	**69,157**	**39.2**

Source: Health Protection Surveillance Centre (HPSC)
See appendix for detailed indicator definitions and methodology.

Immunisation rate for human papillomavirus (HPV) vaccine

Definition

Percentage of girls in first year of second level schools and their age equivalents who have received the HPV vaccine.

Description

The human papillomavirus (HPV) is the most common sexually transmitted virus worldwide. Two HPV types (16 and 18) cause 70% of cervical cancers and precancerous cervical lesions.

The HPV vaccine protects women from these strains of the virus, thereby providing protection against cancer. The vaccine was licensed in 2006 in Ireland. To date, over 100 million people have been vaccinated with HPV vaccine worldwide including over 220,000 girls 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 [18].

Since 2010, all girls in first year in second level schools in Ireland are offered the HPV vaccine each year. Following a request from the Department of Health, HIQA agreed to conduct a Health Technology Assessment into the value of also providing this vaccine to boys in secondary school. The HTA recommended that the HPV immunisation programme be extended to include boys. A policy decision was made to implement this recommendation and also to introduce a 9-valent HPV vaccine in September 2019. The current national target is that at least 80% of the girls who are offered this vaccine will complete the required 2 or 3 dose schedule.

Vaccination uptake is measured from September of one year to August of the following year, rather than by calendar year, for example 2016-2017 refers to the vaccination uptake between September 2016 and April 2017. This is to align with the academic year.

Rationale for the inclusion of indicator

About 80% of all women will have a HPV infection in their lifetime - usually in their late teens and early 20s. HPV causes virtually all cases of cervical cancer.

Every year in Ireland:

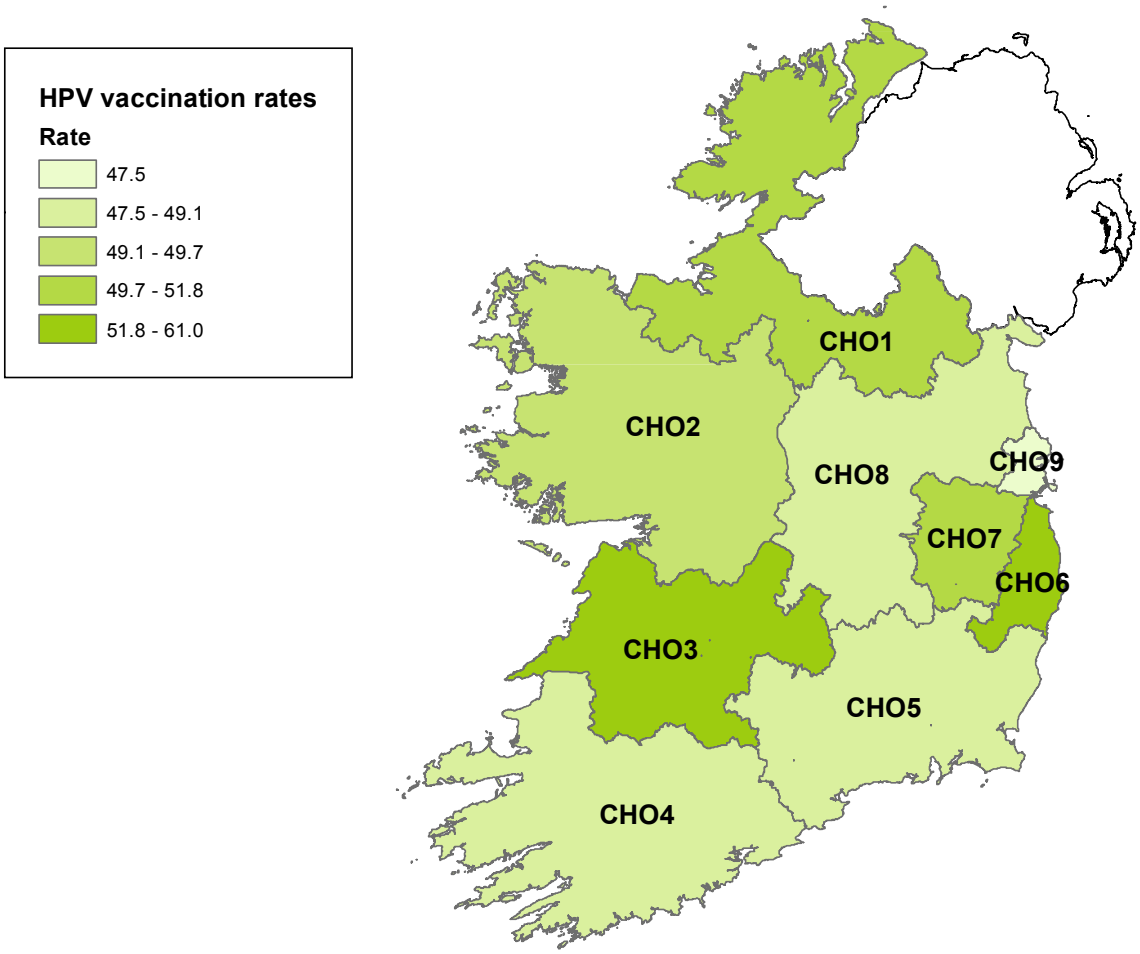
- 6,500 women need hospital treatment for a precancerous cervical growth
- 300 (many young) women get cervical cancer
- 90 women die from cervical cancer.

Commentary

- Due to the unavailability of HPV immunisation data for the 2017/2018 academic year, data reported here is as was previously reported in the 2018 National Healthcare Quality Reporting System.
- Figure 10 shows the trend in completed HPV immunisation rates in girls in first year of second level schools and their age equivalents for the academic years 2014/2015 and 2015/2016. This demonstrates that uptake declined substantially over these three years for which is available data, from 87% in 2014/2015 to 72% in 2015/2016 and finally 51% in the 2016/2017 academic year.
- Figure 9 and Table 6 show uptake of the HPV vaccine by Local Health Office and Community Health Organisation for the academic year 2016/2017. Substantial variation is seen by area, ranging from just 40% uptake in Kerry to 74% uptake in South Dublin East. No areas achieved the national target (uptake ≥ 80%).
- The variation reported here requires further investigation at local level. It is noted that public views about some media coverage about this vaccine may have adversely impacted uptake levels in recent years. The World Health Organization and national experts and regulatory body in the world have refuted these allegations and stated that the HPV vaccine is safe and that it is not associated with an increased risk of any of the alleged side effects.
- In August 2017, the HPV Vaccination Alliance was launched with leadership from the National Immunisation Office. The alliance consists of a group of over 35 different organisations working in the areas of health, women's rights, child welfare, and wider civil society that are committed to raising awareness of HPV vaccination. In 2017 and 2018, an information campaign was launched featuring vaccinated girls, which was strongly supported by the HPV Vaccination Alliance, the HSE, the Department of Health and the Minister for Health. A wide range of groups now promote the vaccine, which has had an immediate impact. This impact is not visible in the data presented here, as this report gives information on the previous academic year.
- Regretfully, data for the 2018/2019 academic year was not available at the time of NHQRS publication.

Figure 9: Immunisation rate for HPV among girls in first year of second level schools and their age equivalents by county, for academic year 2016/2017

The target for uptake of two doses of vaccine for the routine HPV vaccination programme is ≥80%.



Source: Health Protection Surveillance Centre (HPSC)
See appendix for detailed indicator definitions and methodology.

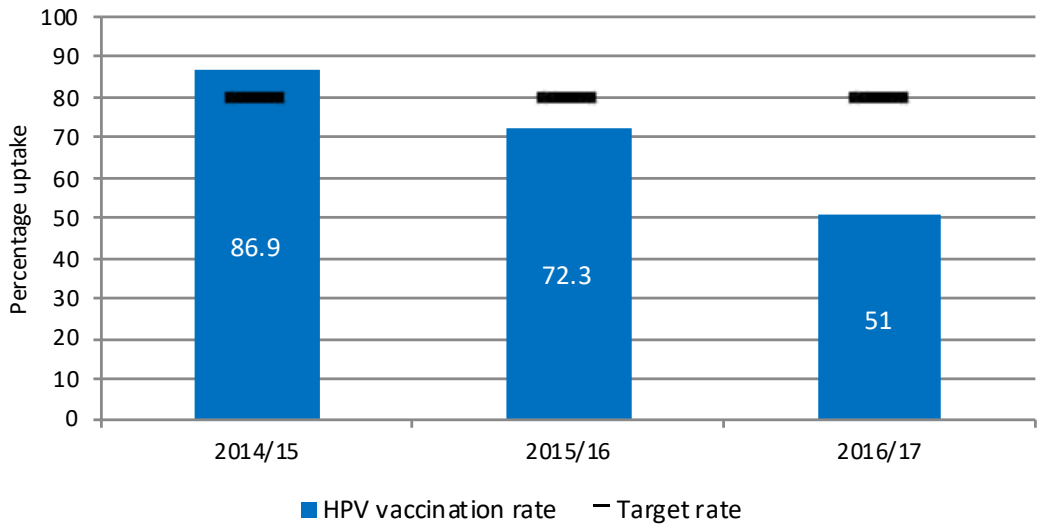
Table 6: Immunisation rate for HPV among girls in first year of second level schools and their age equivalents by Community Health Organisation and Local Health Office, for academic years 2015/2016 - 2016/2017

Community Health Organisation	Local Health Office	HPV uptake in academic year 2015/16 (%)	HPV uptake in academic year 2016/17 (%)
CHO 1	Cavan/Monaghan	70.8	57.5
	Donegal	71.9	48.7
	Sligo/Leitrim	70.9	48.5
	CHO 1 Total	**71.3**	**51.5**
CHO 2	Galway	72.8	53.4
	Mayo	67.9	43.0
	Roscommon	67.1	48.5
	CHO 2 Total	**70.7**	**49.7**
CHO 3	Clare	75.9	55.7
	Limerick	74.0	59.1
	Tipperary NR/East Limerick	74.1	54.0
	CHO 3 Total	**74.6**	**56.3**
CHO 4	North Cork	62.3	48.3
	North Lee Cork	72.1	52.7
	North South Lee	68.8	53.8
	West Cork	60.2	41.4
	Kerry	60.3	39.8
	CHO 4 Total	**66.3**	**48.8**
CHO 5	Carlow/Kilkenny	80.6	53.5
	South Tipperary	71.8	48.4
	Waterford	77.9	54.1
	Wexford	66.2	41.6
	CHO 5 Total	**74.2**	**49.1**
CHO 6	Dublin South	74.9	64.7
	Dublin South East	81.2	73.8
	Wicklow	73.7	46.2
	CHO 6 Total	**76.3**	**61.0**
CHO 7	Dublin South City	82.5	60.4
	Dublin South West	73.9	47.4
	Dublin West	71.1	47.2
	Kildare/West Wicklow	81.2	52.4
	CHO 7 Total	**77.6**	**51.8**
CHO 8	Laois/Offaly	76.6	48.1
	Longford/Westmeath	69.4	48.5
	Louth	83.5	50.4
	Meath	69.3	48.5
	CHO 8 Total	**74.1**	**48.8**
CHO 9	Dublin North West	69.5	48.7
	Dublin North Central	70.0	50.2
	Dublin North	66.6	45.3
	CHO 9 Total	**68.3**	**47.5**

Source: Health Protection Surveillance Centre (HPSC)
See appendix for detailed indicator definitions and methodology.

Figure 10: Immunisation rate for HPV among girls in first year of second level schools and their age equivalents, academic years 2014/2015 - 2016/2017

The target for uptake of two doses of vaccine for the routine HPV vaccination programme is ≥80%.



Source: Health Protection Surveillance Centre
See appendix for detailed indicator definitions and methodology.

Screening uptake rate for breast cancer

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

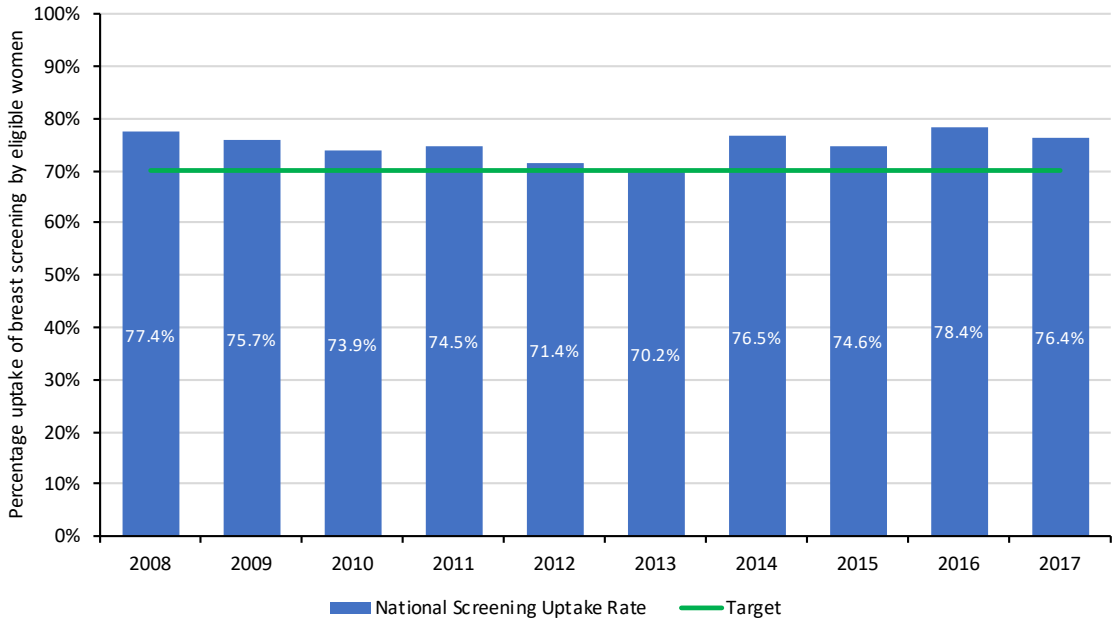
Description
Breast cancer is the most common form of cancer in women. One in nine women will develop breast cancer at some point in their life and one in thirty will die from the disease. Breast screening is where a mammogram (an x-ray of the breast) is taken to look for signs of early breast cancer. In Ireland, the National Screening Service. BreastCheck invites women between the ages of 50 and 64 years for a free mammogram every two years. BreastCheck is currently being extended and by the end of 2021, all eligible women aged 50 to 69 will be invited for routine screening. The target uptake rate in Ireland is 70%.

Rationale for the inclusion of indicator
On average, 2,949 patients were diagnosed with invasive breast cancer each year on average during 2012-2014. This represents almost one third of all major malignancies diagnosed in women.

Notes of Measurement Changes for the Screening Rate Uptake for Breast Cancer
Previously this indicator included information regarding the screening uptake rate for breast cancer for HSE regions/areas of residence. This information is now available and presented on a county basis.

Commentary
- Over the past ten years, the uptake of breast cancer screening by those eligible has remained above the target of 70%.
- All counties are above the 70% national target, with the national average uptake rate at 76.4%.
- Figure 13 shows that Ireland's rate of uptake for breast screening is higher than the OECD average of 60.8%. 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.

Figure 11: Uptake of breast screening by the eligible population, 2008-2017

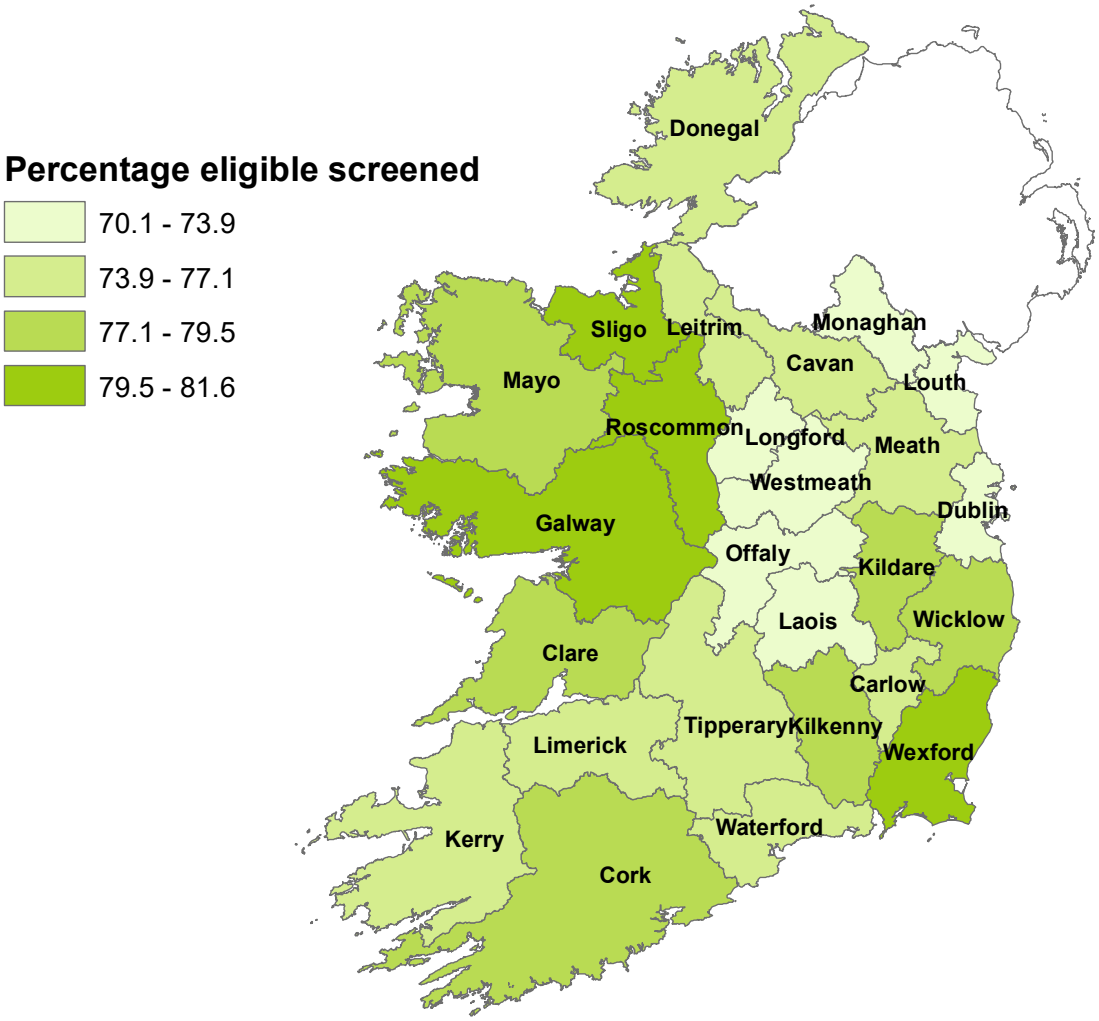


Source: National Screening Service

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 2017.
See appendix for detailed indicator definitions and methodology.

Figure 12: Percentage of eligible women screened by county of residence for the period 1st January 2016 – 31st December 2017

BreastCheck's target uptake rate is ≥70%.



Source: National Screening Service

Note: Data for 2016-2017 is provisional.
See appendix for detailed indicator definitions and methodology.

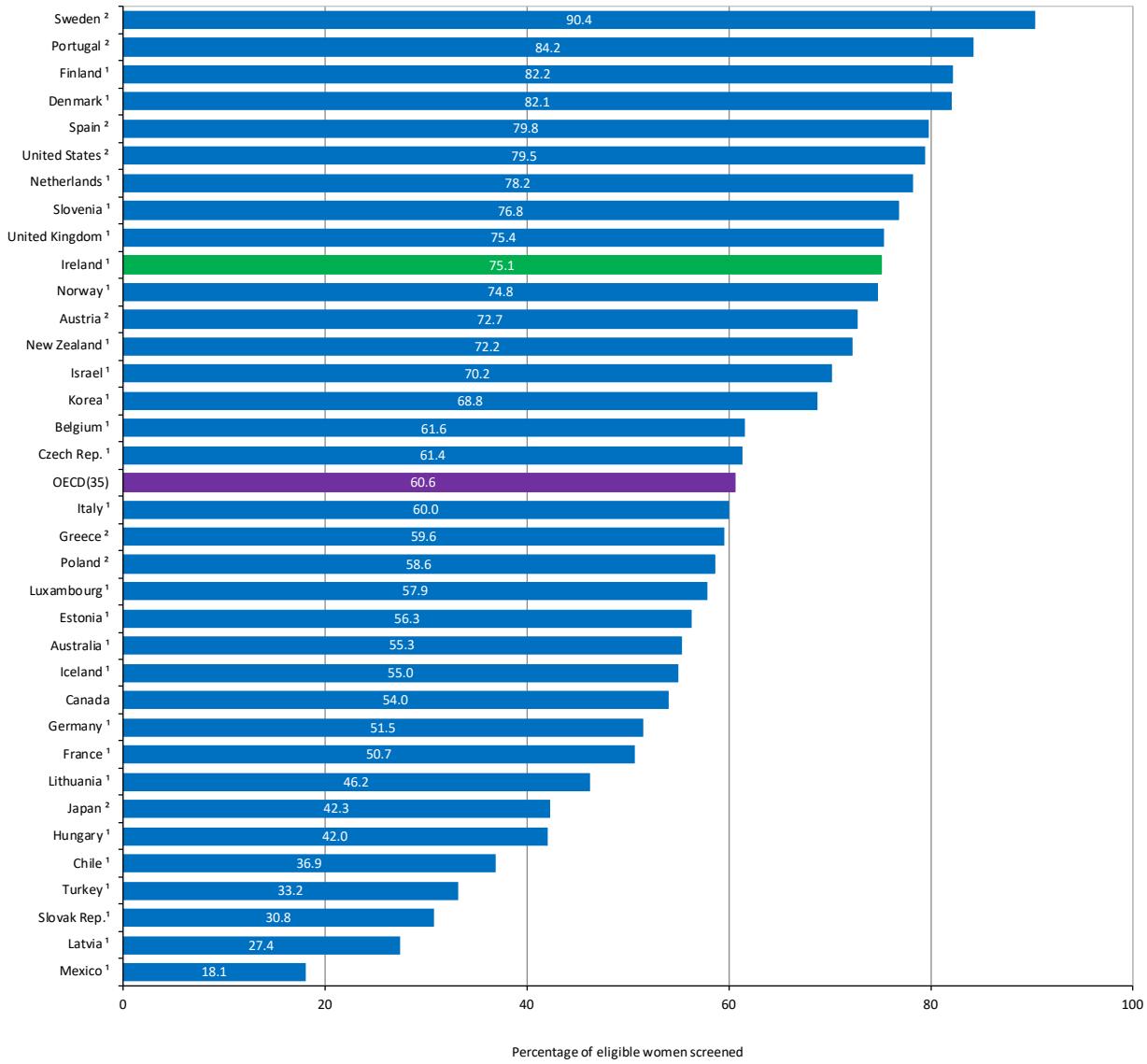
Table 7: Percentage of eligible women screened by county of residence for the period 1st January 2016 – 31st December 2017

County	Percentage Uptake 2016-2017
Carlow	76.8%
Cavan	76.5%
Clare	77.5%
Cork	78.5%
Donegal	76.4%
Dublin	73.8%
Galway	79.9%
Kerry	75.3%
Kildare	78.9%
Kilkenny	77.9%
Laois	70.8%
Leitrim	77.1%
Limerick	75.3%
Longford	72.0%
Louth	73.9%
Mayo	79.5%
Meath	76.1%
Monaghan	73.0%
Offaly	73.4%
Roscommon	81.6%
Sligo	81.3%
Tipperary	75.5%
Waterford	76.5%
Westmeath	70.1%
Wexford	80.5%
Wicklow	79.2%
National Average	76.4%

Source: National Screening Service

Note: Data for 2016-2017 is provisional.
See appendix for detailed indicator definitions and methodology.

Figure 13: Uptake of breast screening in women aged 50 to 69 in OECD countries, 2016 (or nearest year)



[1] Programme, [2]Survey

Source: OECD Health Statistics

Note on international comparability: 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.

See appendix for detailed indicator definitions and methodology.

Screening uptake rate for cervical cancer

Definition

The proportion of the eligible population in Ireland who had a satisfactory[1] smear 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 smear tests to pick up any early cell changes (precancerous growths) can significantly reduce the risk of cervical cancer.

In Ireland all women aged 25 to 60 years can avail of CervicalCheck, Ireland's national cervical screening programme. The programme operates both an invitation entry system whereby eligible women receives an invitation letter, and "direct entry" whereby smear takers (e.g. general practitioner (GP), practice nurse) can directly screen eligible women.

Routine screening every 3 or 5 years depending on age is recommended for women whose previous cervical screening test results did not detect an abnormality. CervicalCheck aims to reach a target five-year coverage of 80%.

Cervical cancer screening uptake is 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 September 2016 and August 2017.

Rationale for the inclusion of indicator

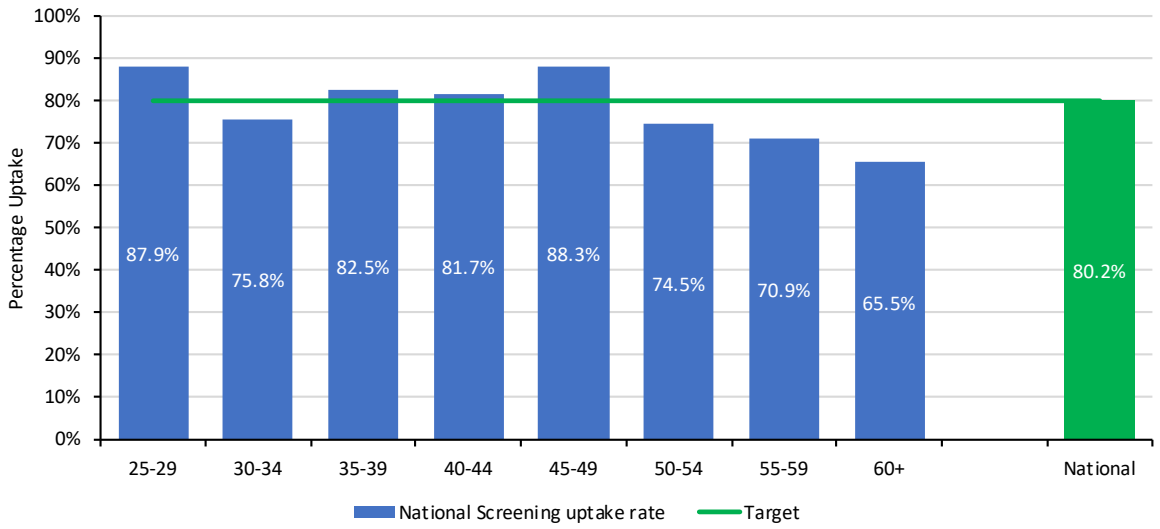
Every year in Ireland 300 women are diagnosed with cervical cancer and 90 women die from it. Cervical cancer is the second most common case of death due to cancer in women aged 25 to 39 years.

Commentary

- The coverage of CervicalCheck in the 2017, the latest time period for which data is provisionally available, was 78%. The coverage by age group shows that the highest coverage rate is among those women aged 25 to 29.
- At a county level, screening uptake rates 2012-2017 ranged from 70% in Laois to 91% in Carlow. Eight counties achieved the 80% target coverage for the time period. The reasons for the variation in uptake rates in different locations require further investigation.
- Although, Ireland has not yet reached its national target of 80% uptake, Ireland's rate of uptake for cervical screening is significantly higher than the OECD average. 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.
- The national target of 80% uptake rate was achieved by women in the following age groups: 25 to 29, 40 to 44 and 45 to 49.

[1] Satisfactory smear tests refer to those that had a sufficient number of cells within the test sample to allow for testing to be completed.

Figure 14: Five-year coverage of the cervical screening programme in Ireland by age group, 1st September 2012 – 31st August 2017

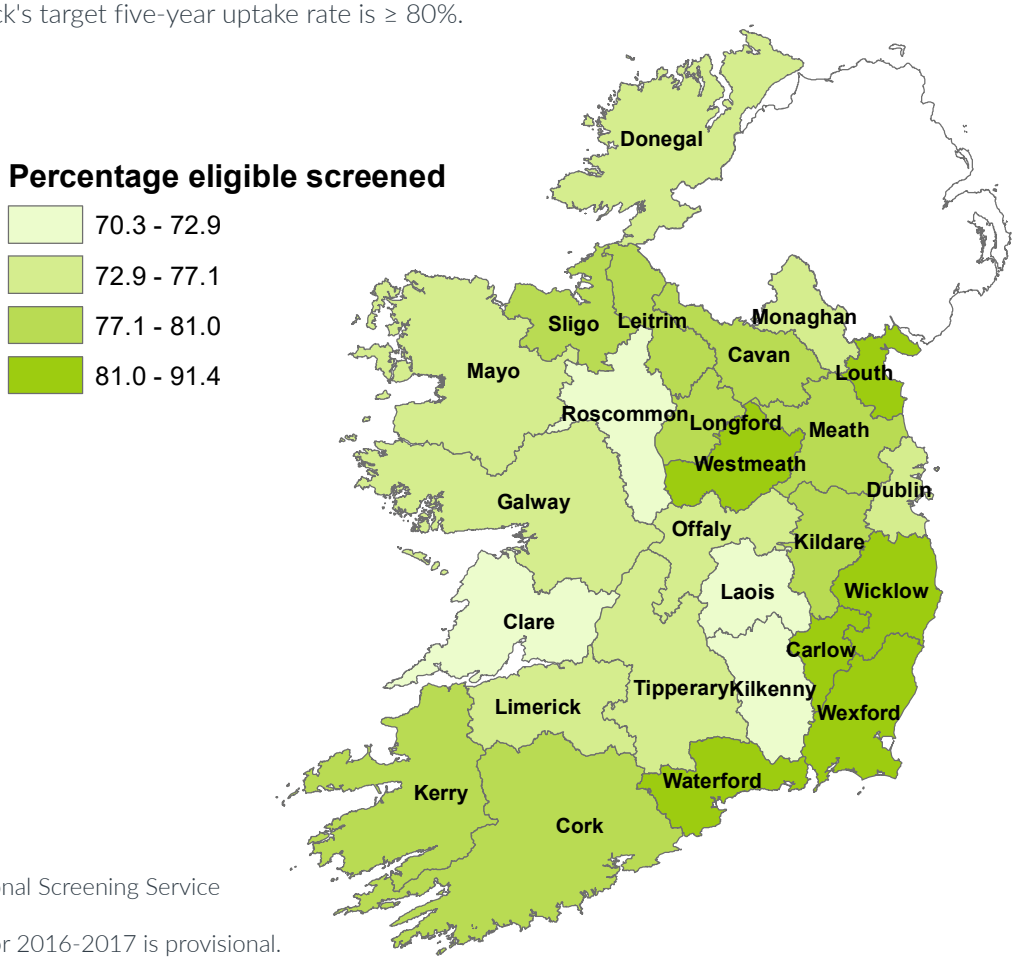


Source: National Screening Service

Notes: 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.
See appendix for detailed indicator definitions and methodology.

Figure 15: Five year coverage of the cervical screening programme in Ireland by county for period from 1st September 2012 – 31st August 2017

CervicalCheck's target five-year uptake rate is ≥ 80%.



Source: National Screening Service

Note: Data for 2016-2017 is provisional.
See appendix for detailed indicator definitions and methodology.

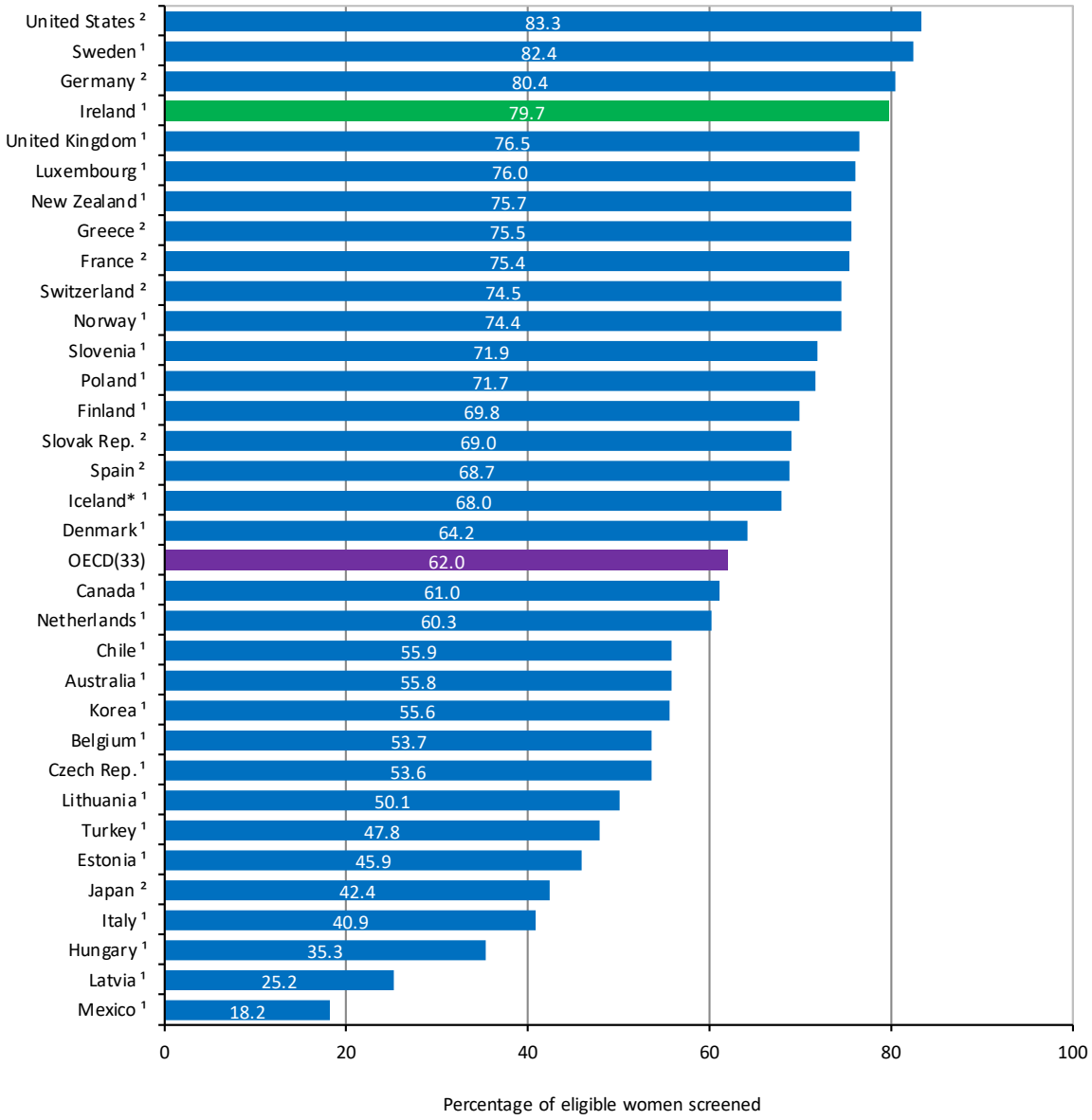
Table 8: Percentage of eligible women screened for cervical cancer by county of residence for the period from 1st September 2012 - 31st August 2017

County	Percentage Uptake 2012-2017
Carlow	91.4%
Cavan	79.7%
Clare	72.9%
Cork	79.8%
Donegal	76.2%
Dublin	77.1%
Galway	76.2%
Kerry	78.3%
Kildare	81.0%
Kilkenny	72.4%
Laois	70.3%
Leitrim	78.8%
Limerick	75.9%
Longford	80.2%
Louth	84.8%
Mayo	76.6%
Meath	79.2%
Monaghan	75.2%
Offaly	75.5%
Roscommon	72.7%
Sligo	78.0%
Tipperary	76.9%
Waterford	82.8%
Westmeath	86.5%
Wexford	82.9%
Wicklow	84.5%
National Average	**78.3%**

Source: National Screening Service

Notes:
i. Population based on CSO 2011 projected to 2013, not adjusted for hysterectomy
ii. Eligible population based on CSO 2011, projected to 2014 , not adjusted for hysterectomy
iii. Data for 2012-2017 is provisional
See appendix for detailed indicator definitions and methodology.

Figure 16: Cervical screening in women aged 20 – 69 years in OECD countries, 2016 (or nearest year)



[1] Programme, [2]Survey

Source: OECD Health Statistics

Note on international comparability: 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.

Ireland's cervical cancer screening programme covers women aged 25 to 60. The age cohorts covered by screening programmes in other countries may vary,

See appendix for detailed indicator definitions and methodology.

Screening uptake rate for colorectal cancer

Definition

The proportion of the eligible population in Ireland 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. In Ireland, bowel cancer is the third most common type of cancer. An estimated 2,270 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. The programme will be expanded over time until all of the 55-74 age group is reached. Eligible people receive an invitation letter to receive an at-home bowel screening test called a FIT (faecal immunochemical test). BowelScreen reports that 95% of people will have a normal result following the at home test. BowelScreen offer a colonoscopy to everyone who has a BowelScreen home test result showing traces of blood not visible to the eye. 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

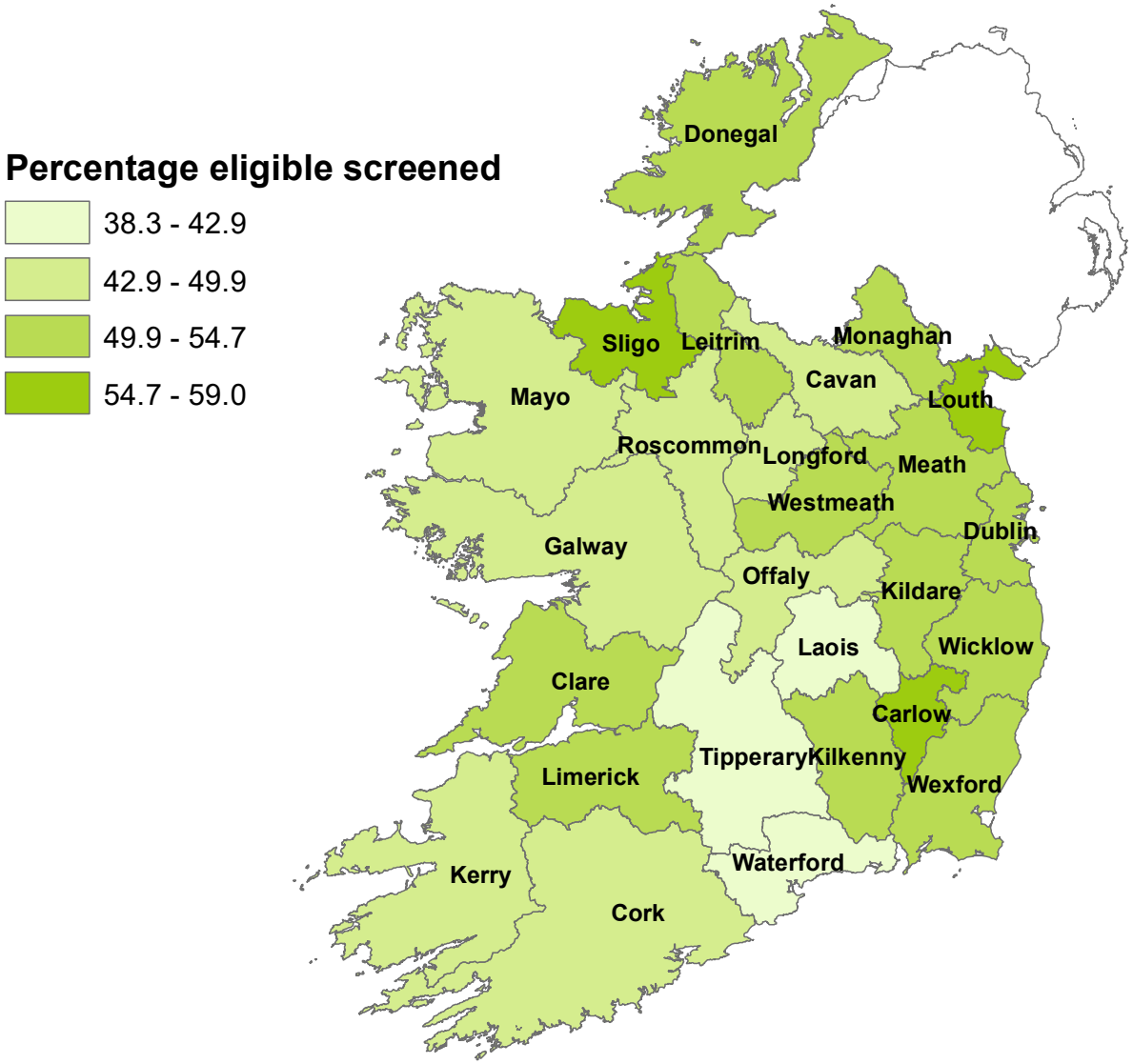
In Ireland, bowel (colon, rectal or colorectal) cancer is the second most common newly diagnosed cancer among men and women. Each year over 2,270 new cases of colorectal cancer are reported. The number of new cases is expected to increase significantly over the next 10 years, due mainly to an increasing and ageing population.

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

Commentary

- Nationally, the target uptake rate is 50%. In 2016-2017 (latest data available), 15 counties meet the target rate of 50% uptake. The national uptake rate is just above this target at 51%.
- Following screening for breast and cervical cancers, population based colorectal cancer screening programmes have begun, targeting people in their 50s and 60s (OECD, 2013). The OECD's 2017 Health at a Glance states that "Partly because of uncertainties about the cost-effectiveness of screening (Lansdorp-Vogelaar et al.,2010), countries are using different methods. These include faecal occult blood test, and screening colonoscopies and flexible sigmoidoscopies. The OECD state that these differences, as well as the differences in frequency of screening in different international programmes make it difficult to compare screening uptake rates across countries. At this time they do not collect data on colorectal cancer screening and hence no international comparator is available here.

Figure 17: Percentage of eligible population screened for bowel cancer by county of residence for the period 1st January 2016 – 31st December 2017[i]



Note: BowelScreen's target for five-year coverage of the eligible population is ≥50%. At the time of publication, two year's data is available and reported here.
Data for 2016-2017 is provisional.
See appendix for detailed indicator definitions and methodology.

Table 9: Percentage of eligible population screened for colorectal cancer by county of residence for the period 1st January 2016 – 31st December 2018

County	Bowel Screening Percentage Uptake of Population aged 60-69, 2016-2017
Carlow	59.0%
Cavan	48.3%
Clare	52.4%
Cork	47.9%
Donegal	53.4%
Dublin	53.9%
Galway	45.9%
Kerry	48.2%
Kildare	53.1%
Kilkenny	53.2%
Laois	42.9%
Leitrim	54.7%
Limerick	54.0%
Longford	44.8%
Louth	58.3%
Mayo	49.9%
Meath	53.5%
Monaghan	51.1%
Offaly	46.0%
Roscommon	48.6%
Sligo	57.1%
Tipperary	38.3%
Waterford	41.2%
Westmeath	53.2%
Wexford	50.7%
Wicklow	53.6%
National Average	**50.9%**

Source: National Screening Service

Note: Data for 2016-2017 is provisional.
See appendix for detailed indicator definitions and methodology.

2

Domain 2: Supporting people with long term conditions

Ambulatory care sensitive conditions

- Chronic obstructive pulmonary disease (COPD) hospitalisation rates 57
- Asthma hospitalisation rates 61
- Diabetes hospitalisation rates 65
- Heart failure hospitalisation rates 70

Overview of selected indicators

There are 4 indicators 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. For example brain natriuretic peptide (BNP) testing and echocardiography in heart failure.

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. A model of care has also been recently established for diabetes.

The 4 indicators for ambulatory 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.

In the Sláintecare Action Plan 2019, it is noted that there are plans for a "Living Well with a Chronic Condition" Self-Management Framework. It also notes that Integrated Care Programmes for people living with chronic conditions will also be implemented, as well as plans to expand capacity in GP and community nursing to manage chronic disease.

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 (19)(20).

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. COPD is the commonest disease-specific cause of emergency hospital admissions among adults in Ireland.

The HSE National Clinical Programme for COPD aims to decrease morbidity and mortality associated with COPD through improving early diagnosis and treatment based on best practice guidelines. It also aims to reduce COPD admissions by 1,500 per year.

It is important to note that not all hospitalisations due to COPD are avoidable and may be clinically appropriate.

Specifically, the HSE National Clinical Programme for COPD are developing a clinical guideline on COPD to be submitted to the National Clinical Effectiveness Committee for quality assurance. This will ensure the availability of high quality National Clinical Guideline to enable clinicians in Ireland to manage COPD in an evidence based and cost-effective way.

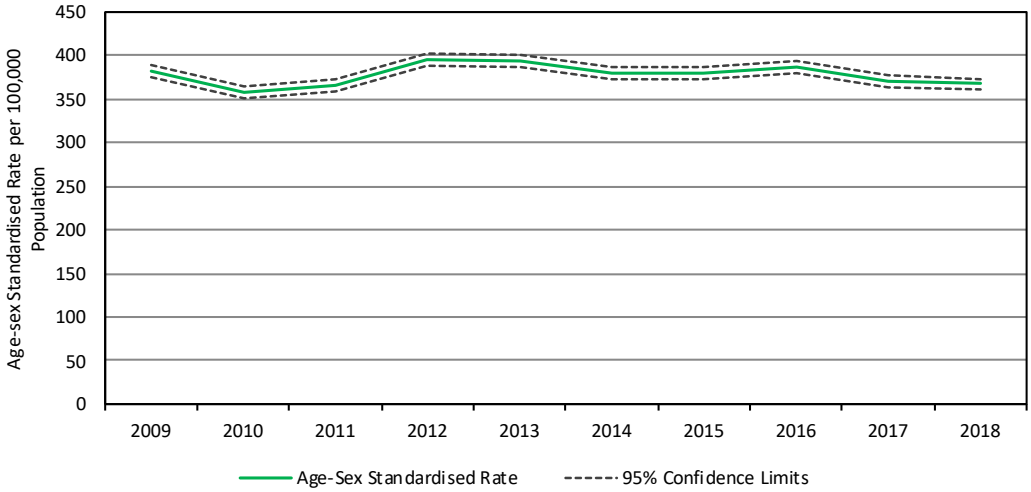
Rationale for the inclusion of indicator

Based on the 2011 census, it is estimated that almost 500,000 people aged 40 years and over in Ireland have COPD, of whom over 200,000 have moderate or severe disease and only half are likely to be diagnosed; given that our population has become larger and older in the interim, it is likely that these figures are even higher today (21)(22).

Commentary

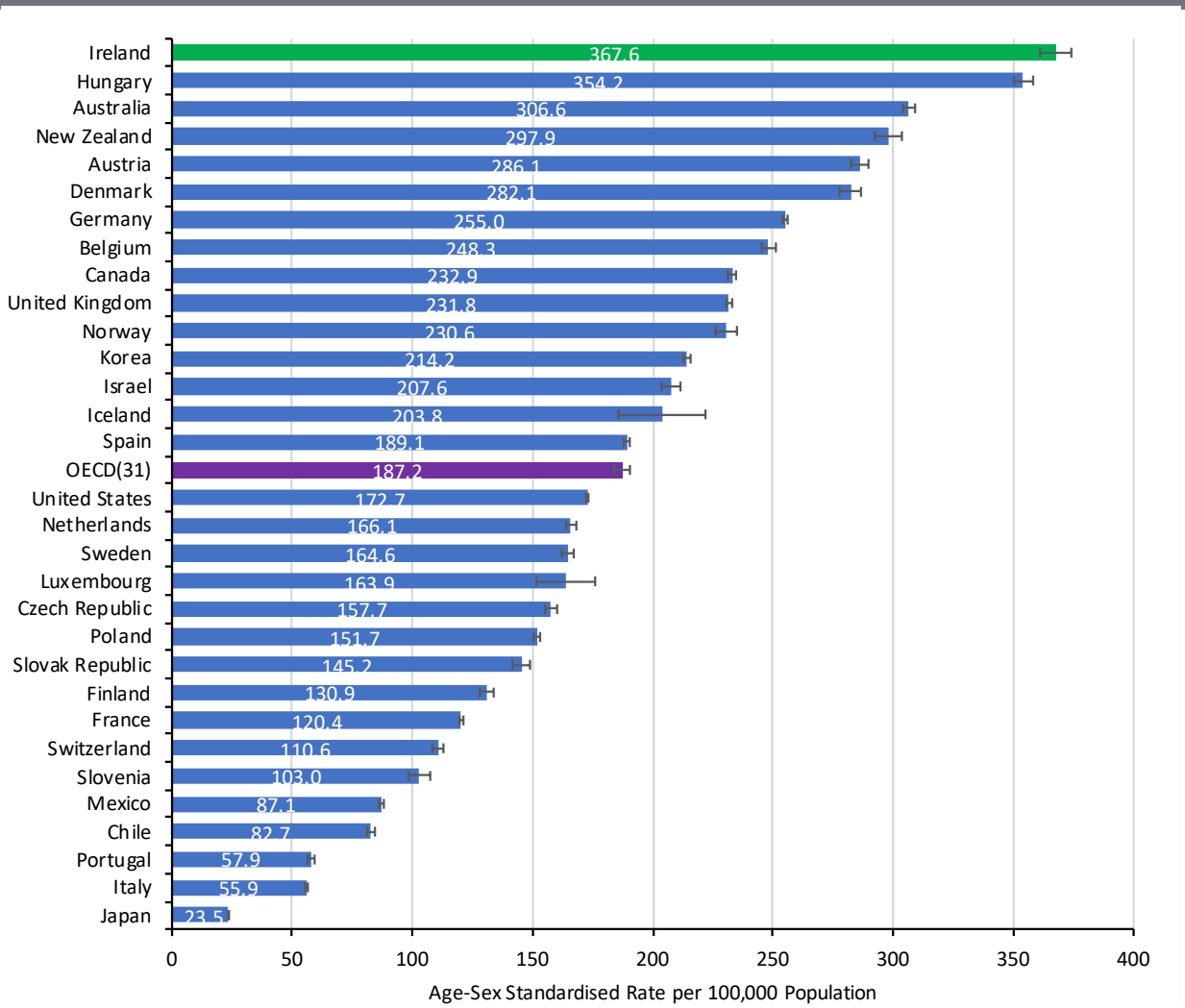
- The national age-sex standardised hospitalisation rate for COPD increased slightly between 2009 and 2018, with 354 per 100,000 population in 2018 compared with 303 hospitalisations per 100,000 population in 2009
- Most countries in the OECD have reported a reduction in hospitalisation rates for COPD over recent years, perhaps as a result of improvements in access to, and the quality of, primary care.
- As in previous years, the OECD reported that Ireland had the highest age-sex standardized hospitalisation rate for COPD in 2015, the latest year for which international data is available. While Ireland's average rate has decreased from 379 hospitalisations per 100,000 population in 2005 to 367 in 2016, the OECD average also declined (214 to 187).
- In Ireland during the three-year period from 2016-2018, the age-sex standardised hospitalisation rate by county of residence ranged from 242 hospitalisations per 100,000 population in Kerry to 552 hospitalisations per 100,000 population in Offaly.
- Although geographic disparity in age-sex standardised hospitalisation rates for COPD is not unique to Ireland (20) (23), 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 18: Age-sex standardised hospitalisation rates for COPD per 100,000 population in Ireland, 2009-2018



Source: Hospital In-Patient Enquiry (HIPE)

Figure 19: Age-sex standardised hospitalisation rates for COPD per 100,000 population for selected OECD countries, 2015 (or nearest year)

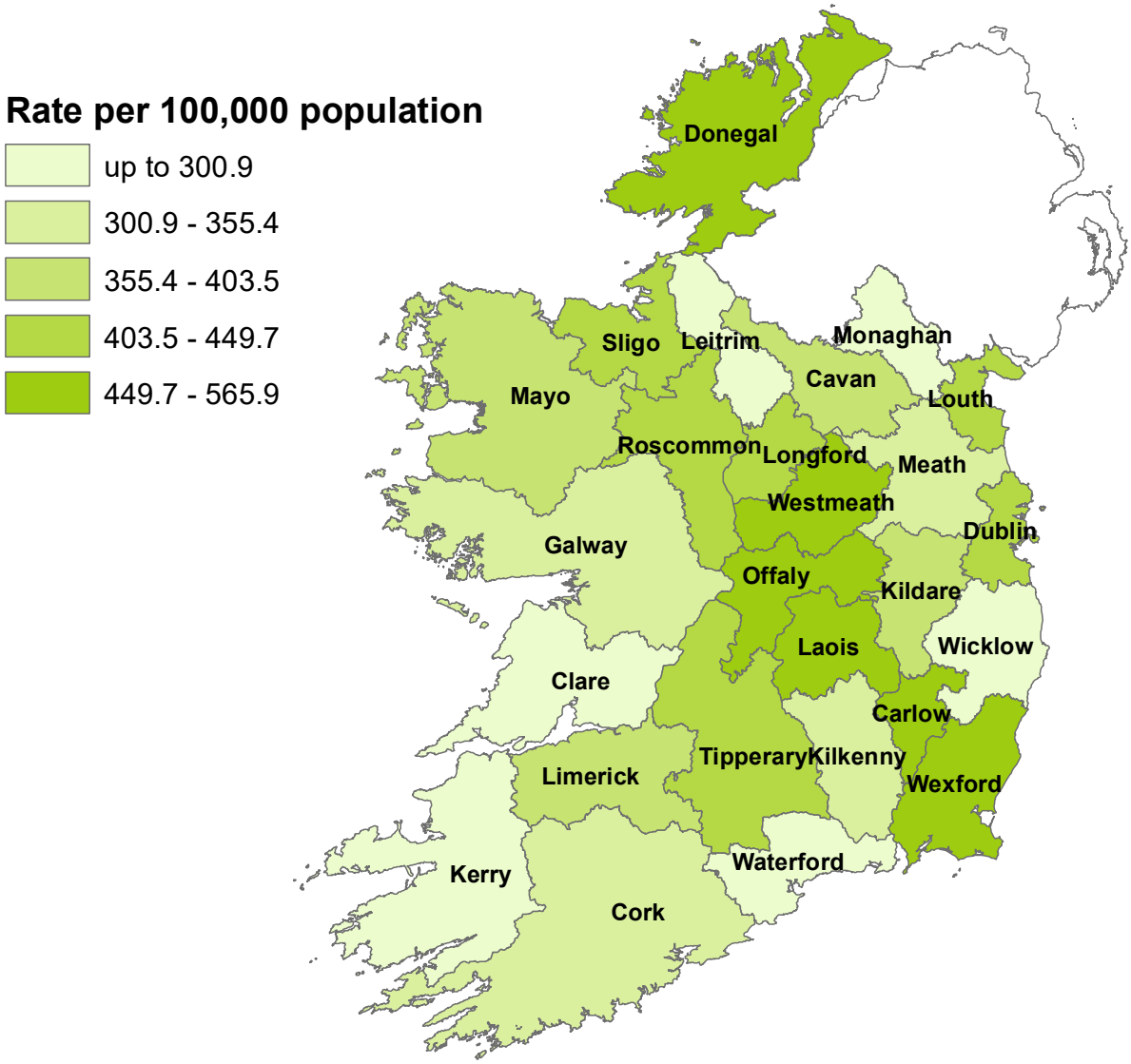


Source: OECD Health Statistics

Note on international comparability: 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 ⊢⊣.

Notes: Deviation from OECD definition for Iceland and Luxembourg.

Figure 20: Age-sex standardised hospitalisation rates for COPD per 100,000 population by county of residence, 2016-2018



Source: Hospital In-Patient Enquiry (HIPE)

Note: Data refer to the average annual age-sex standardised hospitalisation rate per 100,000 population from 2016-2018. See table for 95% confidence limits.
See appendix for detailed indicator definitions and methodology.

Table 10: Age-sex standardised hospitalisation rate for COPD per 100,000 population by county of residence, 2016-2018

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	622	495.0	456.1	533.9
Cavan	660	376.3	347.5	405.2
Clare	762	264.3	245.5	283.2
Cork	3,956	313.7	303.9	323.4
Donegal	2,013	488.4	467.1	509.7
Dublin	11,341	401.5	394.1	408.9
Galway	1,949	338.3	323.3	353.4
Kerry	890	224.6	209.7	239.4
Kildare	1,452	381.7	361.5	401.8
Kilkenny	776	327.0	304.0	350.0
Laois	815	506.5	471.2	541.9
Leitrim	268	289.9	255.0	324.8
Limerick	1,769	384.0	366.1	401.9
Longford	423	439.3	397.4	481.2
Louth	1,159	418.2	394.1	442.3
Mayo	1,346	363.5	344.1	383.0
Meath	1,220	338.7	319.5	358.0
Monaghan	412	282.4	255.1	309.6
Offaly	975	552.8	518.1	587.6
Roscommon	758	407.0	378.0	436.0
Sligo	706	405.9	376.0	435.7
Tipperary	1,745	419.1	399.4	438.7
Waterford	826	292.2	272.2	312.1
Westmeath	1,005	520.2	488.0	552.4
Wexford	1,713	463.3	441.3	485.2
Wicklow	883	274.7	256.4	293.0
National	40,444	375.7	372.1	379.4

Source: Hospital In-Patient Enquiry

Notes:
Data refer to the average annual age-sex standardised hospitalisation rate per 100,000 population from 2016-2018.
See appendix for detailed indicator defintions and methodlogy.

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 the fourth highest prevalence of asthma 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). The HSE National Clinical Programme for Asthma (NCPA) was established in 2011. A key objective of this Programme is to improve asthma control in the community and the NCPA, in conjunction with the Irish College of General Practitioners (ICGP), published Guidelines for the Control of Asthma in General Practice in 2013 (Irish College of General Practitioners Quality in Practice Committee 2013)

The NCPA also aims to reduce acute asthma attendances at emergency departments, in-patient admissions and needless deaths from asthma, and as part of this work, published an NCEC National Clinical Guideline for the Management of Acute Asthma in 2015 [27]. Hospitalisation with an acute exacerbation (attack) of asthma is a sign of uncontrolled asthma and may, in many cases, be preventable.

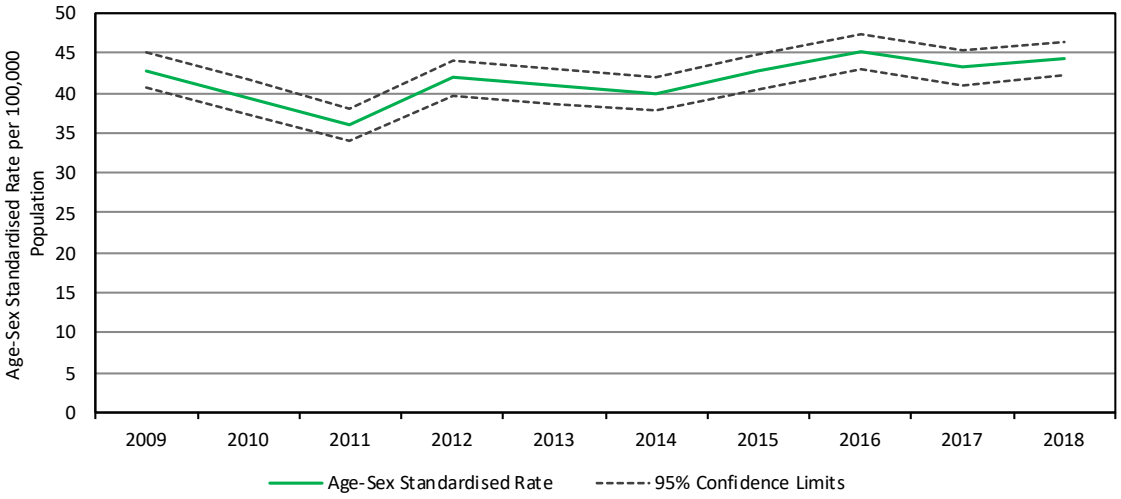
It is important to note that not all hospitalisations are avoidable and some may be clinically appropriate.

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 intramuscular 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 (23). 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 (25).

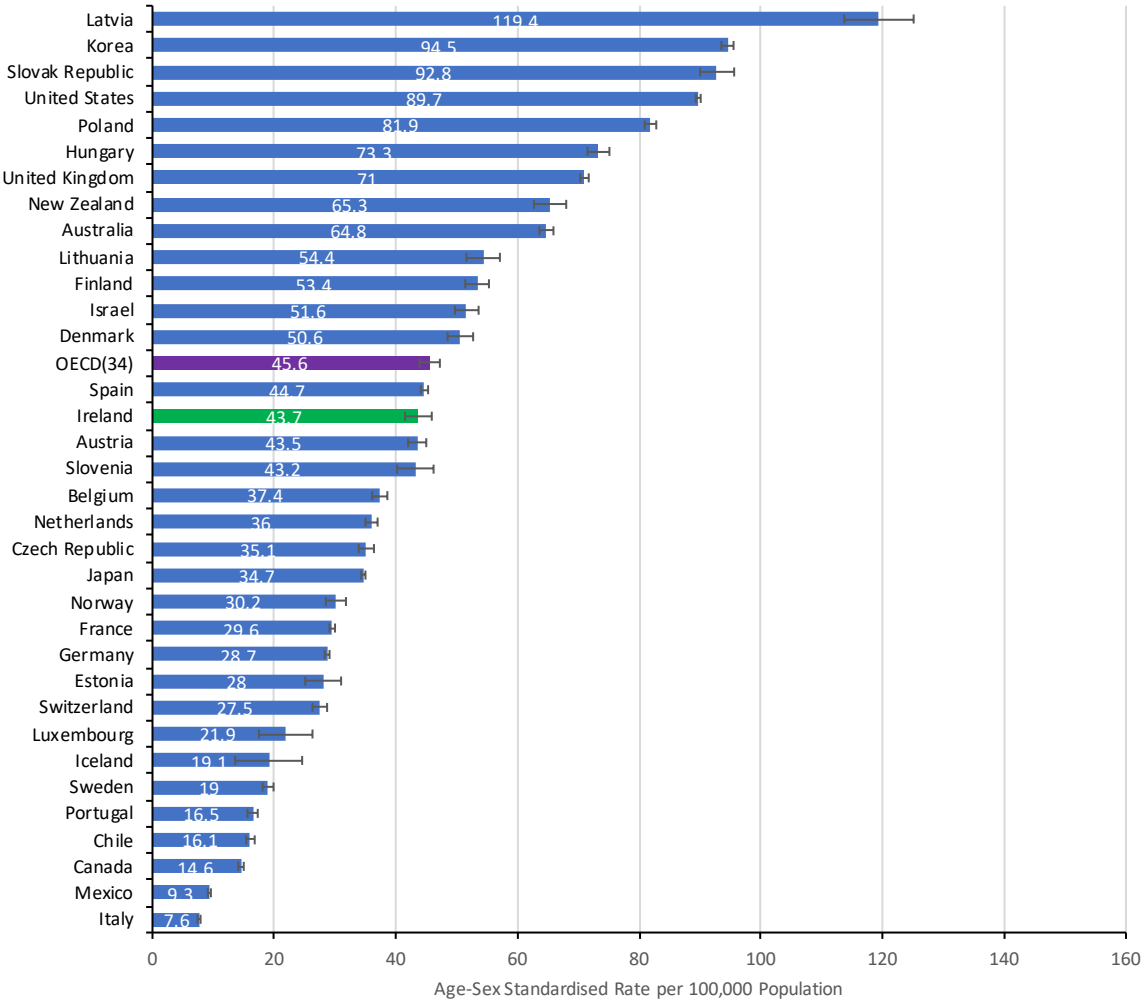
Commentary
- The age-sex standardised hospitalisation rate for asthma fluctuated over the period from 2009-2018, from a high of 45 per 100,000 population in 2016 to a low of 36 per 100,000 population in 2011 (Figure 21). In 2018, there were 44 hospitalisations per 100,000 population.
- During the three-year period from 2016-2018, the age-sex standardised hospitalisation rate by county of residence ranged from 23 hospitalisations per 100,000 population in Kerry to 67 hospitalisations per 100,000 population in Donegal, an almost 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. 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.
- In 2015, Ireland had a rate of 43.7 hospitalisations per 100,000 population, which was just slightly below the OECD average of 45.6 hospitalisations per 100,000 population.

Figure 21: Age-sex standardised hospitalisation rates for asthma per 100,000 population in Ireland, 2009 – 2018



Source: Hospital In-Patient Enquiry (HIPE)

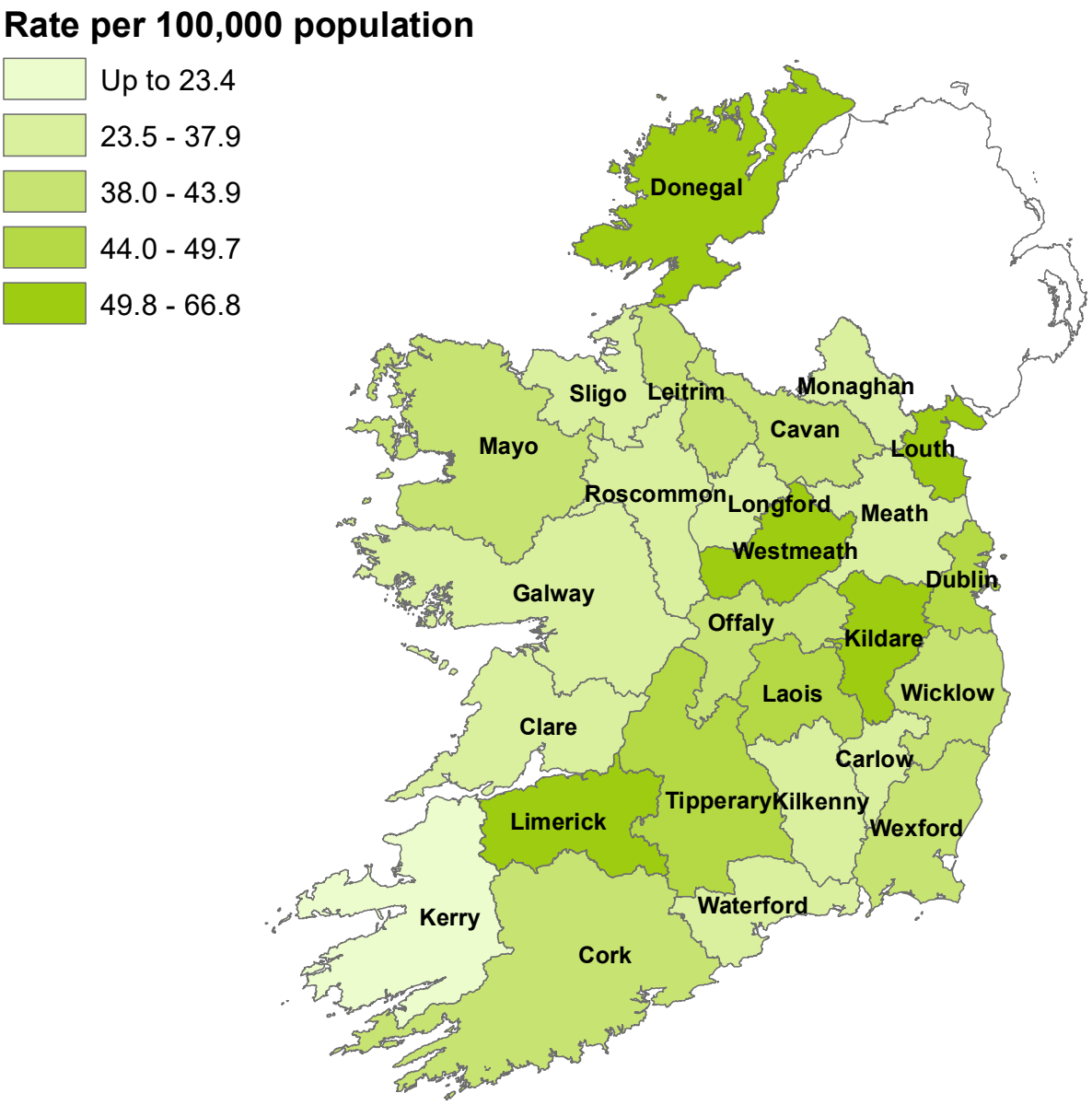
Figure 22: Age-sex standardised hospitalisation rates for asthma per 100,000 population for selected OECD countries, 2015 (or nearest year)



Source: OECD Health Statistics

Note on international comparability: 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 ⊢⊣.

Figure 23: Age-sex standardised hospitalisation rates for asthma per 100,000 population by county of residence, 2016 – 2018



Source: Hospital In-Patient Enquiry

Notes:
Data refer to the average annual age-sex standardised hospitalsations rate per 100,000 population from 2016-2018.
See table for 95% confidence limits.
See appendix for detailed indicator definitions and methodology.

Table 11: Age-sex standardised hospitalisation rates for asthma per 100,000 population by county of residence, 2016–2018

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	50	37.9	27.3	48.5
Cavan	69	40.0	30.4	49.5
Clare	95	33.8	27.0	40.7
Cork	549	43.5	39.8	47.1
Donegal	252	66.8	58.5	75.1
Dublin	1,492	48.7	46.2	51.2
Galway	218	37.4	32.4	42.4
Kerry	84	23.4	18.3	28.5
Kildare	273	57.5	50.4	64.5
Kilkenny	77	33.6	26.1	41.2
Laois	82	45.9	35.7	56.1
Leitrim	31	40.1	25.8	54.4
Limerick	265	57.6	50.6	64.6
Longford	32	34.4	22.4	46.4
Louth	193	65.1	55.9	74.4
Mayo	130	40.1	33.1	47.1
Meath	155	35.7	29.9	41.4
Monaghan	45	32.6	23.0	42.2
Offaly	80	43.2	33.7	52.8
Roscommon	49	31.5	22.5	40.4
Sligo	51	32.6	23.6	41.6
Tipperary	188	49.7	42.6	56.9
Waterford	96	34.8	27.8	41.8
Westmeath	111	55.6	45.2	66.1
Wexford	153	43.3	36.4	50.2
Wicklow	140	42.5	35.4	49.7
National	4,960	45.0	43.8	46.3

Source: Hospital In-Patient Enquiry

Notes:
Data refer to the average annual age-sex standardised hospitalisations rate per 100,000 population from 2016 - 2018. See appendix for detailed indicator definitions and methodology.

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.

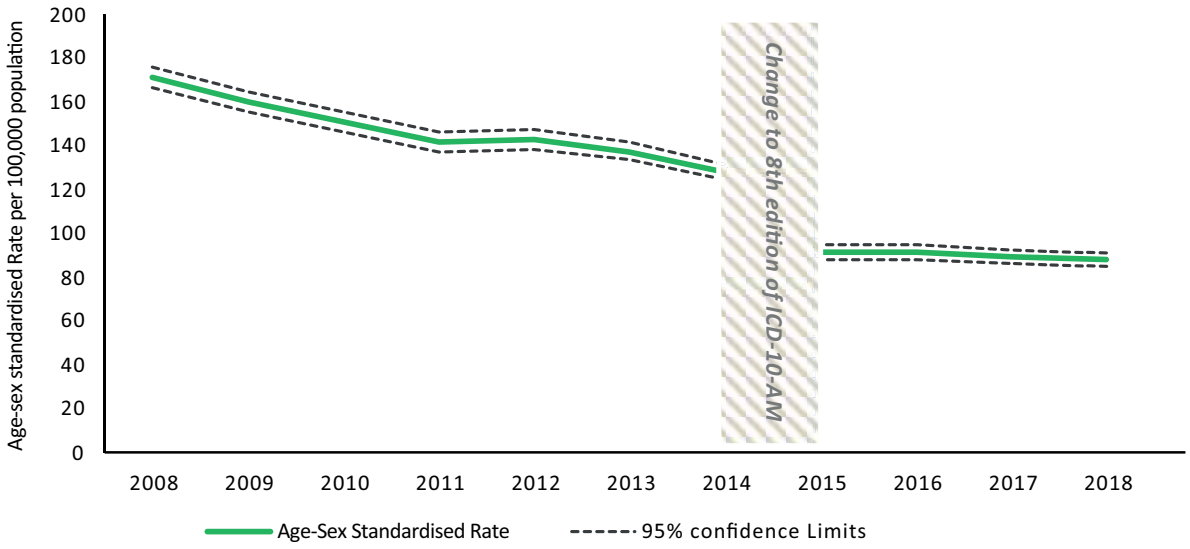
In May 2018 the Department of Health has published the NCEC National Clinical Guideline on Type 1 Diabetes in Adults. This was developed by the HSE National Clinical Programme for Diabetes through an innovative guideline adaptation process called 'guideline contextualisation' in partnership with the National Institute for Health and Clinical Excellence (NICE) in the UK.

Rationale for the selection of indicator
It has been estimated that approximately 5% of adults (aged 18 and over) in Ireland have doctor-diagnosed diabetes [28]. 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 [29].

Notes on Measurement Changes
In 2015, an update to the coding system from ICD-10-AM from 6th to 8th edition which resulted in a change in how diabetes is reported in HIPE and hence the rates years subsequent to 2015 are not directly comparable with those from previous years' the classification. While the number of patients with a primary diagnoses of diabetes has decreased since the measurement change in 2015, the number of patients with a secondary diagnoses of diabetes has increased. The measurement change is indicated as a break in figure 24.

Commentary
- In 2018, the national age-sex standardised hospitalisation rate for diabetes was 89 hospitalisations per 100,000 population. This rate has decreased slightly from 92 in 2015, when the HIPE coding system changed how diabetes was recorded.
- In 2015, (the latest year for which OECD data are currently available), the age-sex standardised hospitalisation rate for Ireland was 92 hospitalisations per 100,000 population. This was below the OECD average of 138 hospitalisations per 100,000 population.
- The diabetes hospitalisation rate varied substantially by county of residence. It ranged from 66 hospitalisations per 100,000 population in Kerry, to 145 hospitalisations per 100,000 population in Longford. 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.

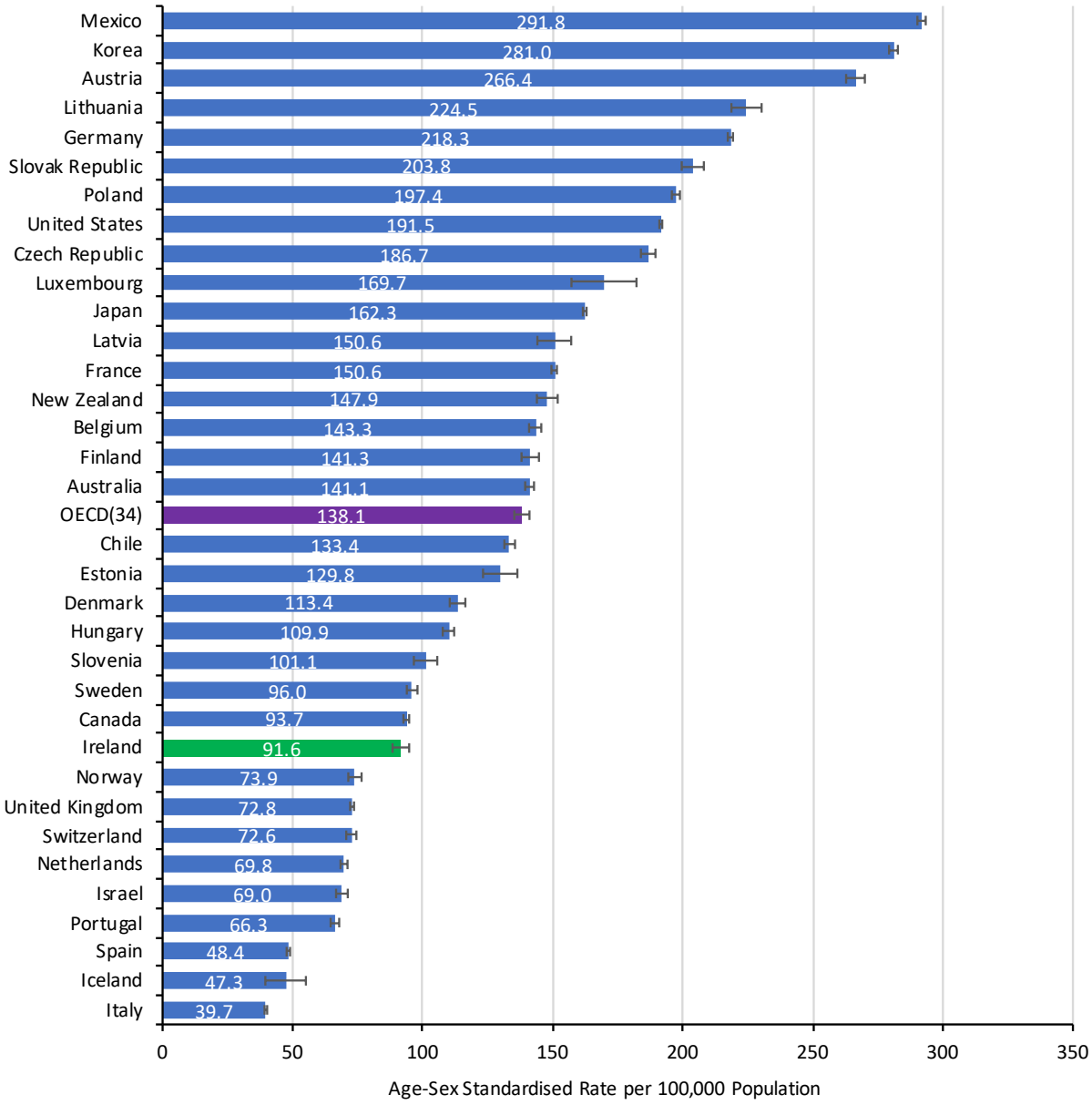
Figure 24: Age-sex standardised hospitalisation rates for diabetes per 100,000 population in Ireland, 2008-2018



Source: Hospital In-patient Enquiry (HIPE)

Note:
In 2015, an update to the coding system from ICD-10-AM from 6th to 8th edition which resulted in a change in how diabetes is reported in HIPE and hence the rates years subsequent to 2015 are not directly comparable with those from previous years' the classification.
See appendix for detailed indicator definitions and methodology.

Figure 25: Age-sex standardised hospitalisation rates for diabetes per 100,000 population for selected OECD countries, 2015 (or nearest year)

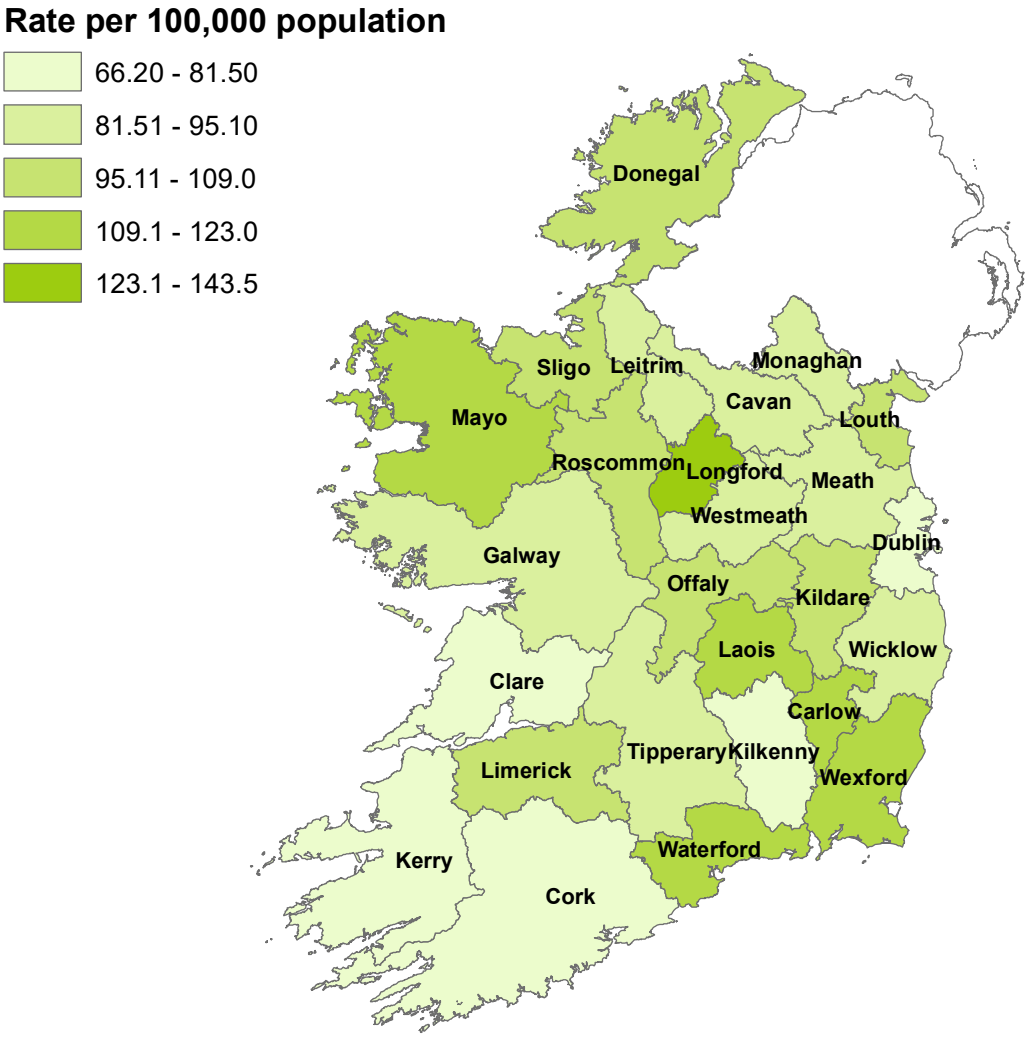


Source: OECD Health Statistics

Note on international comparability: 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 ⊢⊣.

See appendix for detailed indicator definitions and methodology.

Figure 26: Age-sex standardised hospitalisation rates for diabetes per 100,000 population by county of residence, 2016 – 2018



Source: Hospital In-Patient Enquiry

Notes:
Data refer to the average annual age-sex standardised hospitalsations rate per 100,000 population from 2016-2018.
See table for 95% confidence limits.
See appendix for detailed indicator definitions and methodology.

Table 12: Age-sex standardised hospitalisation rates for diabetes per 100,000 population by county of residence, 2016 – 2018

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	161	126.6	106.9	146.4
Cavan	173	95.8	81.4	110.1
Clare	237	83.5	72.7	94.3
Cork	948	75.4	70.6	80.2
Donegal	394	102.4	92.2	112.6
Dublin	2,440	82.6	79.3	85.9
Galway	542	94.0	86.1	102.0
Kerry	237	66.3	57.7	74.8
Kildare	466	105.7	95.7	115.6
Kilkenny	163	70.3	59.5	81.2
Laois	216	123.6	106.8	140.4
Leitrim	75	89.8	69.0	110.7
Limerick	487	106.5	97.0	116.0
Longford	135	145.8	120.9	170.6
Louth	296	106.0	93.8	118.2
Mayo	387	115.1	103.4	126.8
Meath	362	90.9	81.3	100.5
Monaghan	122	84.8	69.7	100.0
Offaly	178	100.0	85.1	114.8
Roscommon	178	108.2	92.0	124.4
Sligo	186	111.6	95.4	127.8
Tipperary	373	93.5	83.9	103.1
Waterford	321	115.1	102.5	127.8
Westmeath	195	96.8	83.1	110.5
Wexford	402	114.3	103.0	125.6
Wicklow	321	97.4	86.6	108.2
National	9,995	91.9	90.1	93.8

Source: Hospital In-Patient Enquiry

Notes:
Data refer to the average annual age-sex standardised hospitalisations rate per 100,000 population from 2016 - 2018.
See appendix for detailed indicator definitions and methodology.

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.

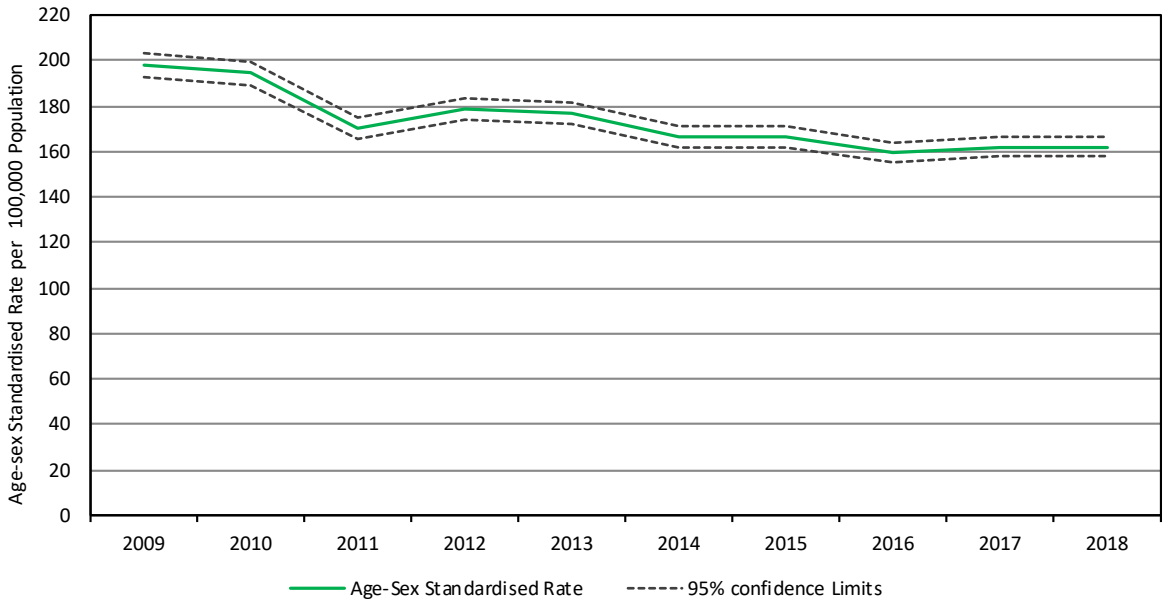
The National Clinical Programme for Heart Failure was established in 2011. The overall aim of this Programme is to improve quality of life for patients with heart failure and to reorganise the way heart failure patients are managed. Since 2011 twelve acute heart failure sites have become active units under the Programme and have introduced a structured specialist hospital service for patients presenting with acute heart failure, including post-discharge follow up.

The Programme has placed increasing emphasis on community care including its community prevention programme in the Midlands and a community new diagnostic clinic in Wexford (Gorey/ Wexford/St Vincents University Hospital Group). The latter provides direct access for GPs to brain natriuretic peptide (BNP) testing and echocardiography in the community with remote specialist advice when required, and has resulted in a substantial reduction in clinic reviews (63% reduction) and in need for echocardiography (37% reduction) in the diagnostic process for heart failure.

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 [21].

Commentary
- The national age-sex standardised hospitalisation rate for heart failure decreased between 2009 and 2018, from 198 hospitalisations per 100,000 population in 2008 to 162 per 100,000 population in 2018 – a 18% improvement in ten years.
- There was no significant change in the hospitalisation rate between 2016, 2017 and 2018.
- In 2015 (the latest year for which OECD data are currently available), the age-sex standardised hospitalisation rate for Ireland was 151 hospitalisations per 100,000 population which was statistically significantly below the OECD average of 242 hospitalisations per 100,000 population.
- During the three-year period from 2016-2018, the age-sex standardised hospitalisation rate for heart failure by county of residence ranged from 113 hospitalisations per 100,000 population in Leitrim, to 232 per 100,000 population in Carlow. The reasons for the variation seen between areas require further investigation. It should be noted that the variation between the county with the highest and lowest hospitalisation rates decreased in 2018 as compared to 2017.
- 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.

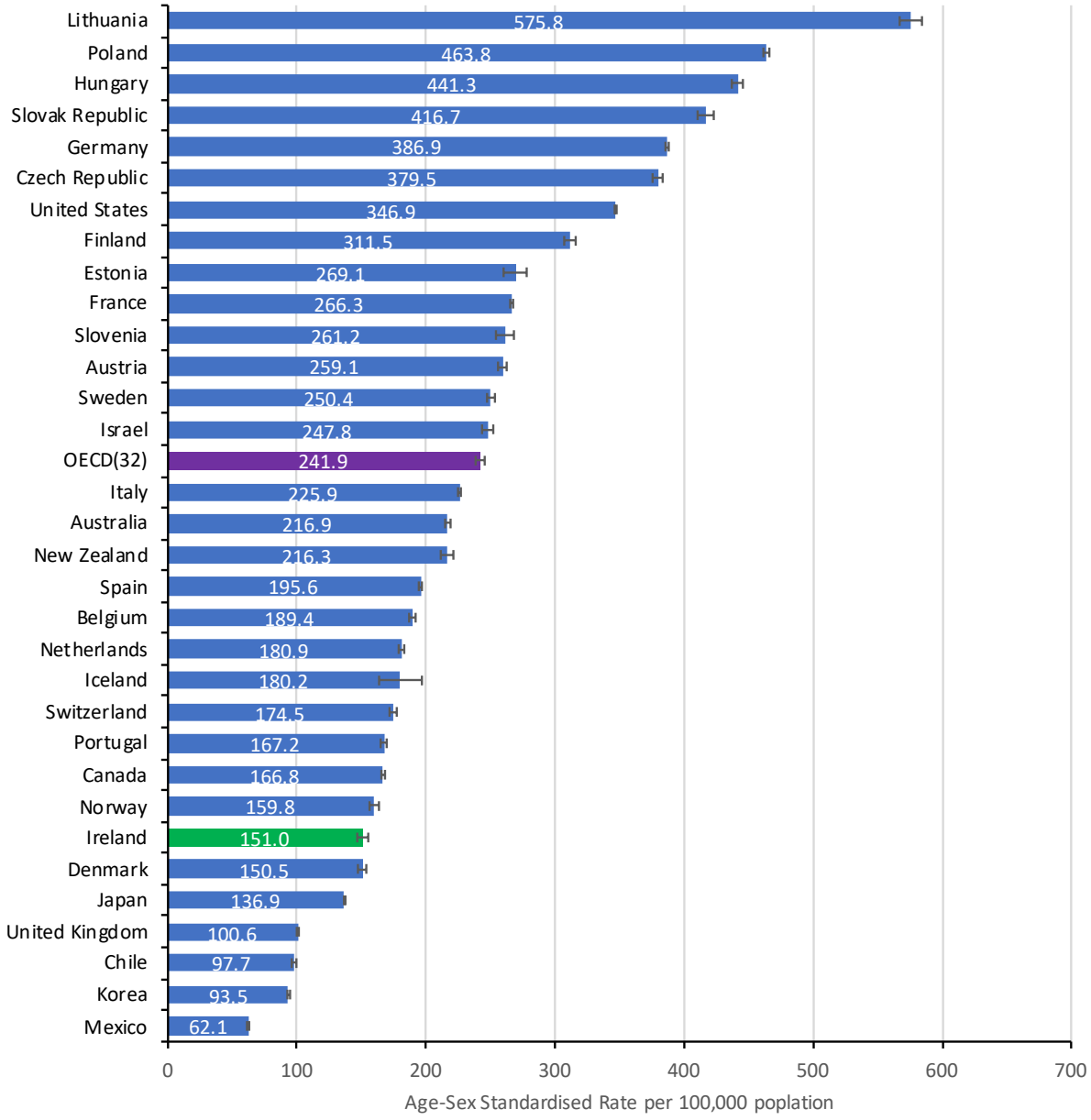
Figure 27: Age-sex standardised hospitalisation rates for heart failure per 100,000 population by county of residence, 2009-2018



Source: Hospital In-patient Enquiry (HIPE)

Note: See appendix for detailed indicator definitions and methodology.

Figure 28: Age-sex standardised hospitalisation rates for heart failure per 100,000 population for selected OECD countries, 2015 (or nearest year)

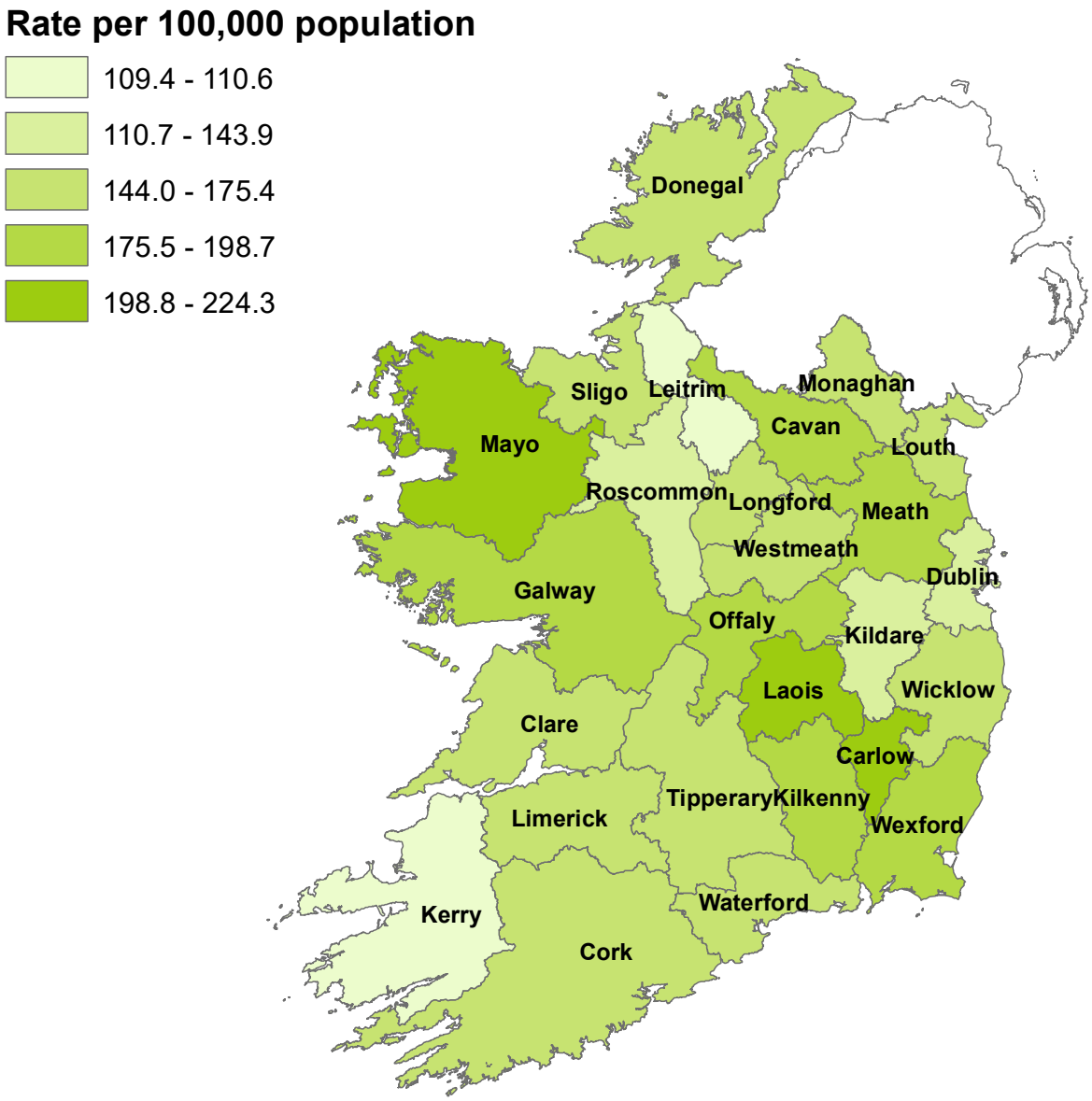


Source: OECD Health Statistics

Note on international comparability: 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 ⊢⊣.

See appendix for detailed indicator definitions and methodology.

Figure 29: Age-sex standardised hospitalisation rates for heart failure per 100,000 population by county of residence, 2016 – 2018



Notes:
Data refer to the average annual age-sex standardised hospitalsations rate per 100,000 population from 2016-2018.
See table for 95% confidence limits.
See appendix for detailed indicator definitions and methodology.

Table 13: Age-sex standardised hospitalisation rates for heart failure per 100,000 population by county of residence, 2016 – 2018

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	274	232.3	204.7	259.9
Cavan	346	204.7	183.1	226.2
Clare	459	167.8	152.4	183.3
Cork	1,918	165.1	157.7	172.5
Donegal	630	161.3	148.6	173.9
Dublin	3,744	142.9	138.3	147.4
Galway	1,050	193.8	182.1	205.6
Kerry	431	113.5	102.8	124.3
Kildare	455	141.0	127.7	154.3
Kilkenny	430	194.5	176.1	212.9
Laois	301	204.0	180.6	227.4
Leitrim	100	112.5	90.2	134.7
Limerick	765	179.8	167.0	192.5
Longford	145	161.4	135.0	187.7
Louth	443	176.2	159.7	192.6
Mayo	766	211.6	196.6	226.5
Meath	598	193.8	178.1	209.5
Monaghan	244	177.9	155.6	200.1
Offaly	303	189.0	167.6	210.4
Roscommon	265	148.2	130.3	166.1
Sligo	299	181.0	160.5	201.5
Tipperary	723	181.8	168.6	195.1
Waterford	467	177.6	161.4	193.7
Westmeath	309	174.1	154.7	193.6
Wexford	662	202.3	186.8	217.7
Wicklow	482	174.6	158.9	190.3
National	16,609	166.7	164.1	169.2

Source: Hospital In-Patient Enquiry

Notes: Data refer to the average annual age-sex standardised hospitalisations rate per 100,000 population from 2016-2018. See appendix for detailed indicator definitions and methodology.

3

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

Cancer survival rates

- Breast cancer survival rates 78
- Cervical cancer survival rates 81
- Colorectal cancer survival rates 84
- Lung cancer survival rates 88

Cancer surgery

- Breast cancer surgical activity 91
- Colon cancer surgical activity 93
- Rectal cancer surgical activity 95

Acute hospital care

- In-hospital mortality rates 97
- Stroke care 102
- In-hospital waiting time for hip fractures 113
- Caesarean section rates 117

Overview of selected indicators

There are 13 indicators 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 [30]. Cancer survival rates are reported by the National Cancer Registry Ireland (NCRI) and the Organisation for Economic Co-operation and Development (OECD). In this fifth 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

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 [31, 32]. 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 allied health professionals) [33, 34, 35].

Following the 2006 National Cancer Strategy, eight designated cancer centres were identified around Ireland, with an additional satellite unit linked to one centre. It was envisaged that all cancer surgery would be centralised to these nine locations (12, 13). 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.

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 [36].

In-hospital mortality rates

International experts consider in-hospital mortality rates to be useful high level indicators of the quality of hospital care when used in association with other measures of quality of care [37]. 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 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 [38]. 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 [39, 40]. 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.

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 during the period 2010-2014 and 2011-2015.

Description

Breast cancer is the most common malignant tumour diagnosed in women in Ireland, with approximately 2,800 cases diagnosed each year – this represents almost one third of all major cancers diagnosed in women. The number of cases of breast cancer diagnosed each year increased by approximately 1.5% between 1994 and 2013, a trend which may have been influenced by the introduction of the BreastCheck Screening Programme in 2000 [41, 42]. Although survival from breast cancer is high, it remains the second most common cause of cancer death in women (after lung cancer).

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.

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

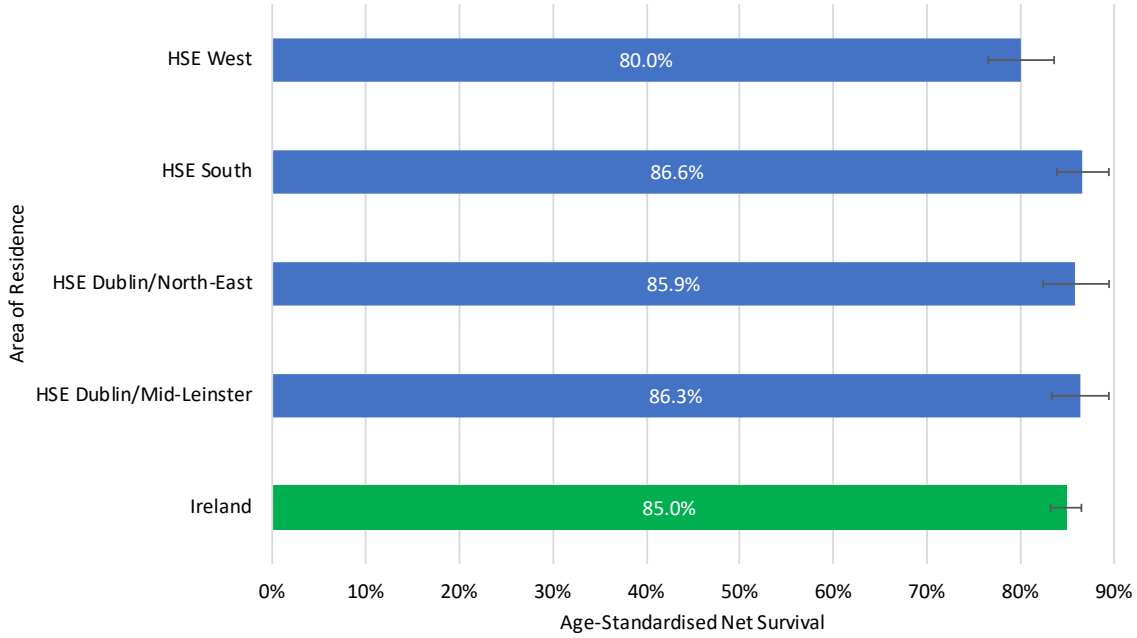
Rationale for the inclusion of indicator

One in nine women will develop breast cancer at some point in their life and one in thirty will die from the disease.

Commentary

- Five year age-standardised net survival from breast cancer was 85% nationally; there was no statistically significant difference between the national rate and any of the four regions.
- The 5-year age-standardised net survival rate for breast cancer in Ireland for the cohort diagnosed in 2010-2014 was below the OECD average (85%), 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 30: Cumulative 5-year age-standardised net survival in Ireland for female breast cancer patients diagnosed in 2011-2015



Source: National Cancer Registry Ireland, March 2018

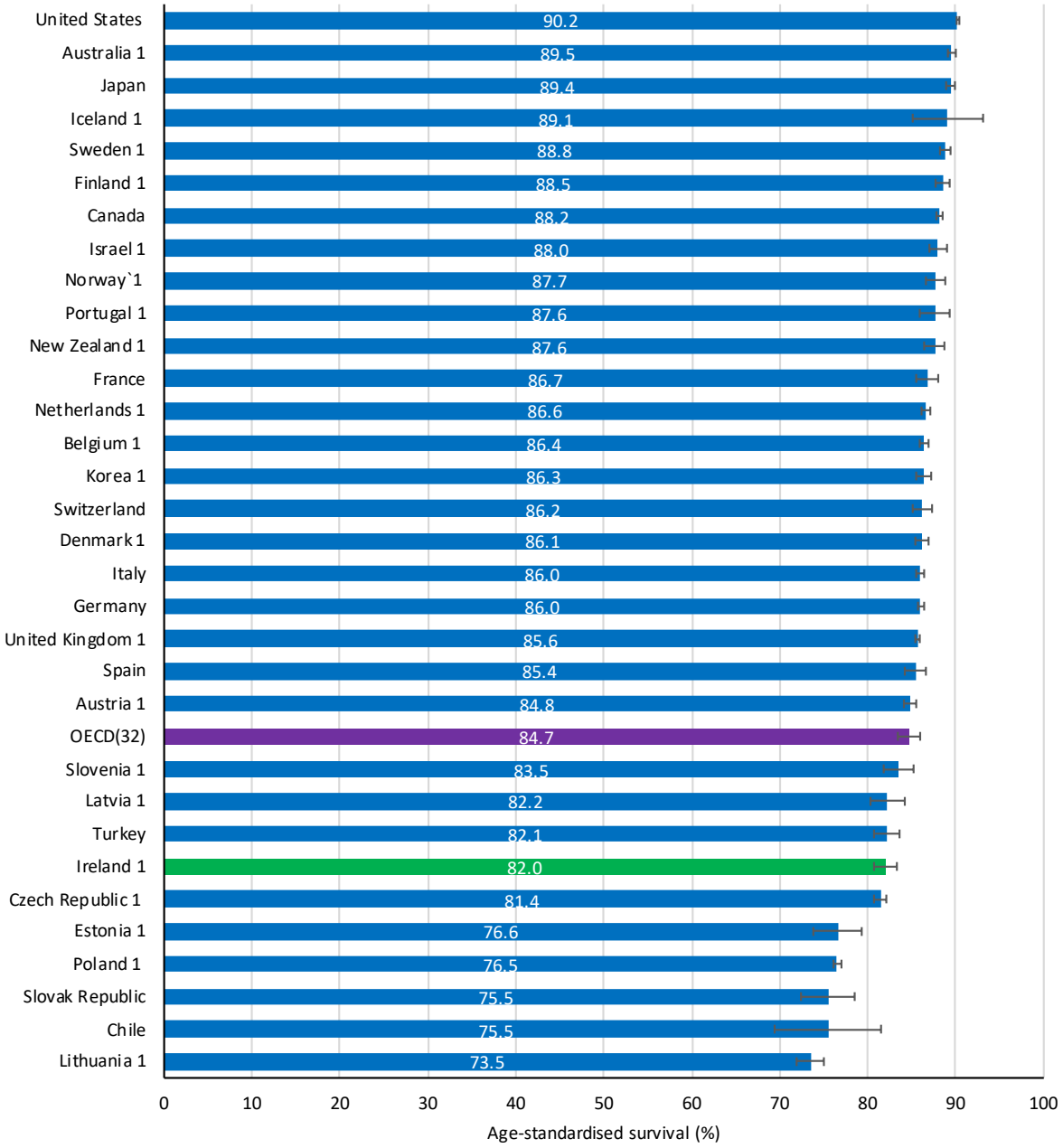
Note:
Net survival is an 'improved' version of relative survival which takes better account of competing mortality risks (allowing greater comparability between different populations or age-groups) and represents the cumulative probability of a patient surviving a given time in the hypothetical situation 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).

See appendix for detailed indicator definitions and methodology.

Exclusions:
Patients aged under 15 years or over 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.

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

Figure 31: Cumulative 5-year age-standardised net survival, female breast cancer, 2010-2014 (or nearest period), OECD countries



Source: Health Statistics, OECD

Note: [1]Data with 100% national coverage of population

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 ⊢⊣ .

See appendix for detailed indicator definitions and methodology.

Exclusions: Patients aged under 15 years or over 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.
Cancer registration is a dynamic process and information is continually updated on our database. As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown in previous NHQRS publications .

Cervical cancer survival rates

Definition

Age-standardised estimates of cumulative 5-year net survival in Ireland and OECD countries for cervical cancer patients diagnosed during the period 2010 – 2014 and 2011 - 2015.

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 five-year survival, although five years of follow-up are not available for all patients.

Rationale for the inclusion of indicator

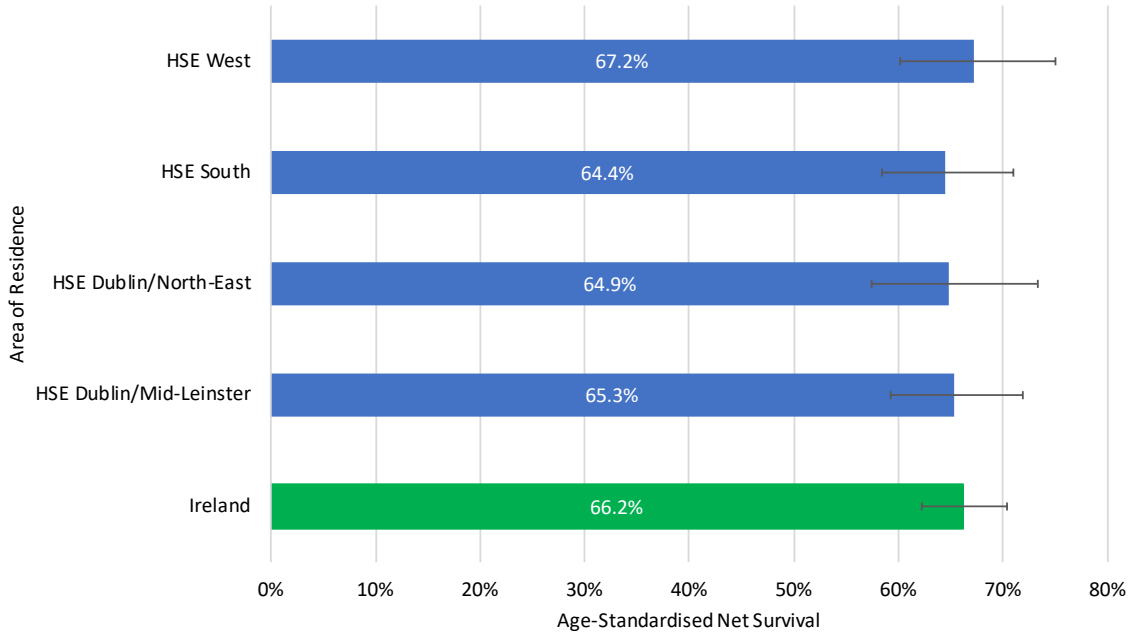
Every year in Ireland

- 6,500 women need hospital treatment for a precancerous cervical growth
- 300 (many young) women get cervical cancer
- 90 women die from cervical cancer.

Commentary

- Five-year age-standardised net survival from cervical cancer was 66.2% nationally; there was no statistically significant difference between the national rate and any of the four regions.
- 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 (65.7%), 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 32: Cumulative 5-year age-standardised net survival in Ireland, cervical cancer, 2011-2015



Source: National Cancer Registry Ireland, March 2018.

Notes:
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).

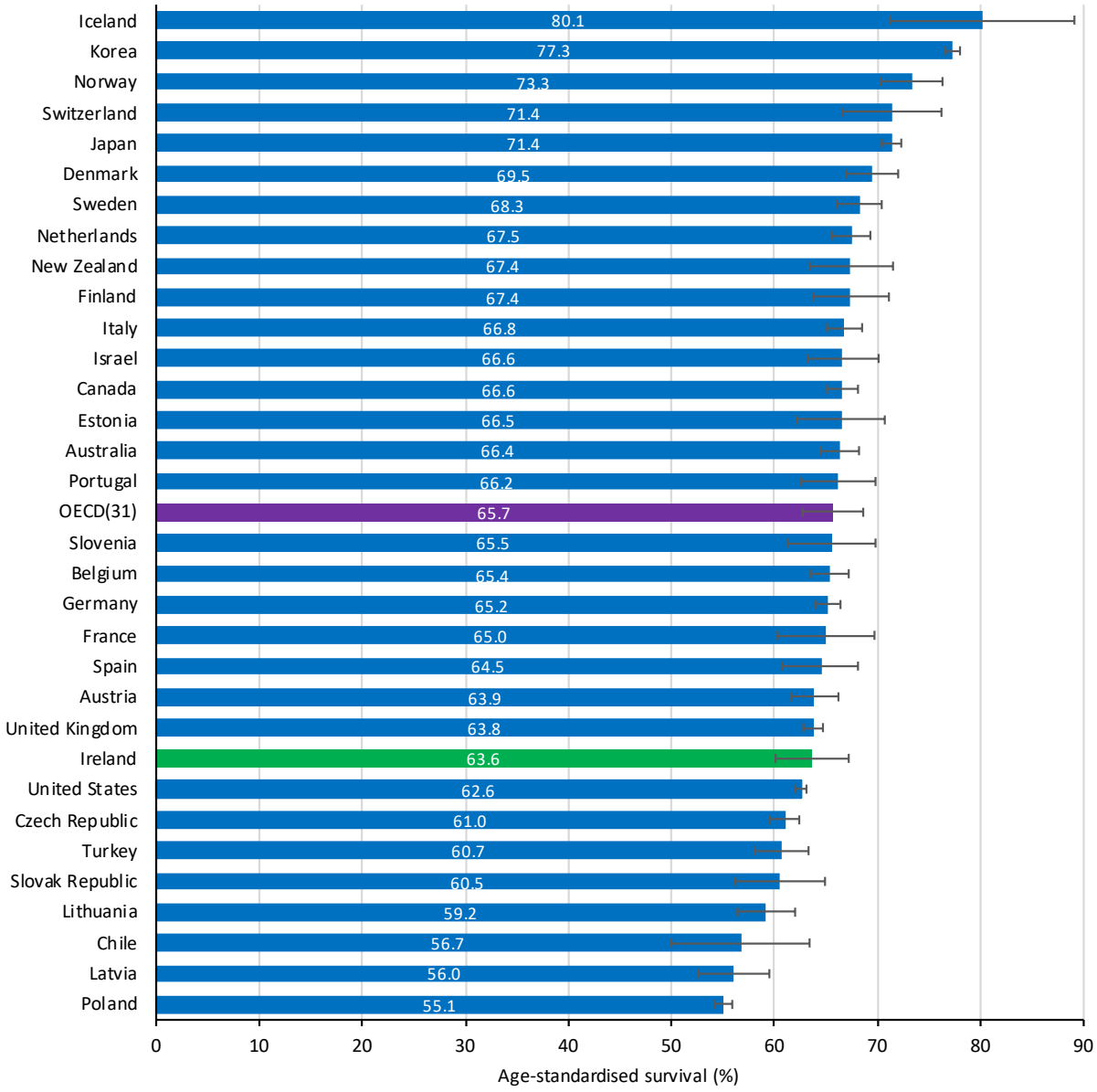
See appendix for detailed indicator definitions and methodology.

Exclusions:
Patients aged under 15 years or over 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.

Cancer registration is a dynamic process and information is continually updated on our database.

As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on our website.

Figure 33: Cumulative 5-year age-standardised net survival, cervical cancer, 2010-2014 (or nearest period, OECD countries



Source: OECD Health Statistics

Note: 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 ⊢⊣.

See appendix for detailed indicator definitions and methodology.

Colorectal cancer survival rates

Definition

Age standardised estimates of cumulative 5-year net survival in Ireland and OECD countries for colorectal cancer patients diagnosed during the period 2010 – 2014 and 2011 – 2015.

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 [42].

Colorectal cancer is the second most common cause of cancer death and causes approximately 1,000 deaths in Ireland annually [42].

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 over recent periods.

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

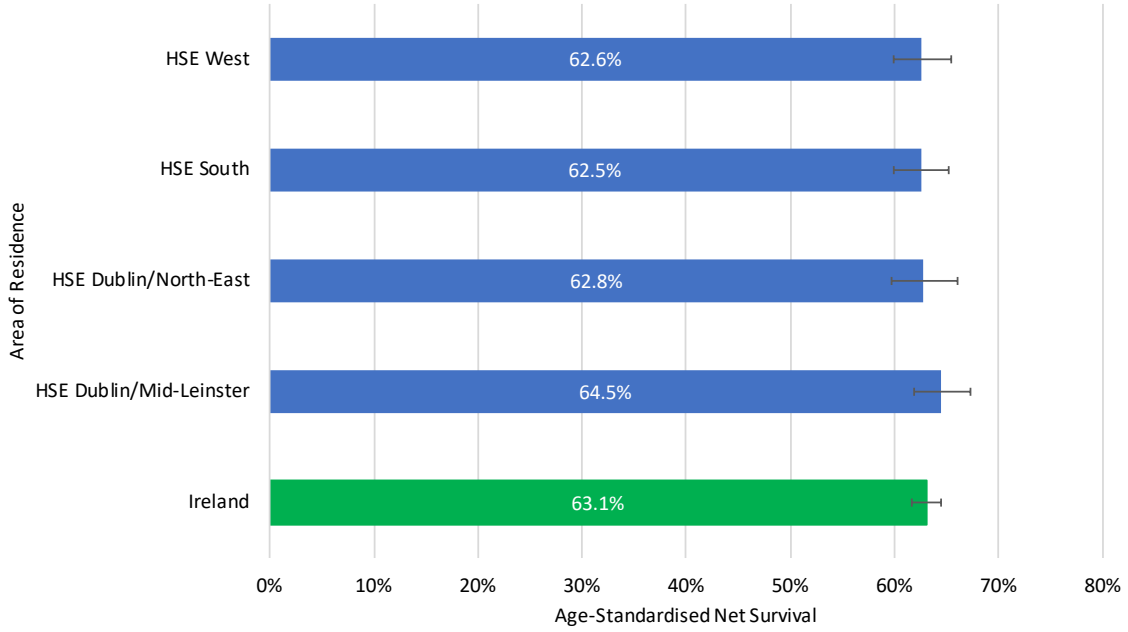
Rationale for the inclusion of indicator

Colorectal cancer is the second most common cause of cancer death and causes approximately 1,000 deaths in Ireland annually [42].

Commentary

- Five-year age-standardised net survival from colorectal cancer was 63% nationally; there was no statistically significant difference between the national rate and any of the four regions.
- The 5-year age-sex standardised net survival rate for colon cancer in Ireland (60.5%) for the period 2010-2014 was below the OECD average (62.4%), although this difference was not statistically significant.
- For rectal cancer, Ireland (61.7%) is slightly above the OECD average (60.7%).
- 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 34: Cumulative 5-year age-standardised net survival in Ireland, colorectal cancer, 2011-2015



Source: National Cancer Registry Ireland, March 2018

Notes:
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).

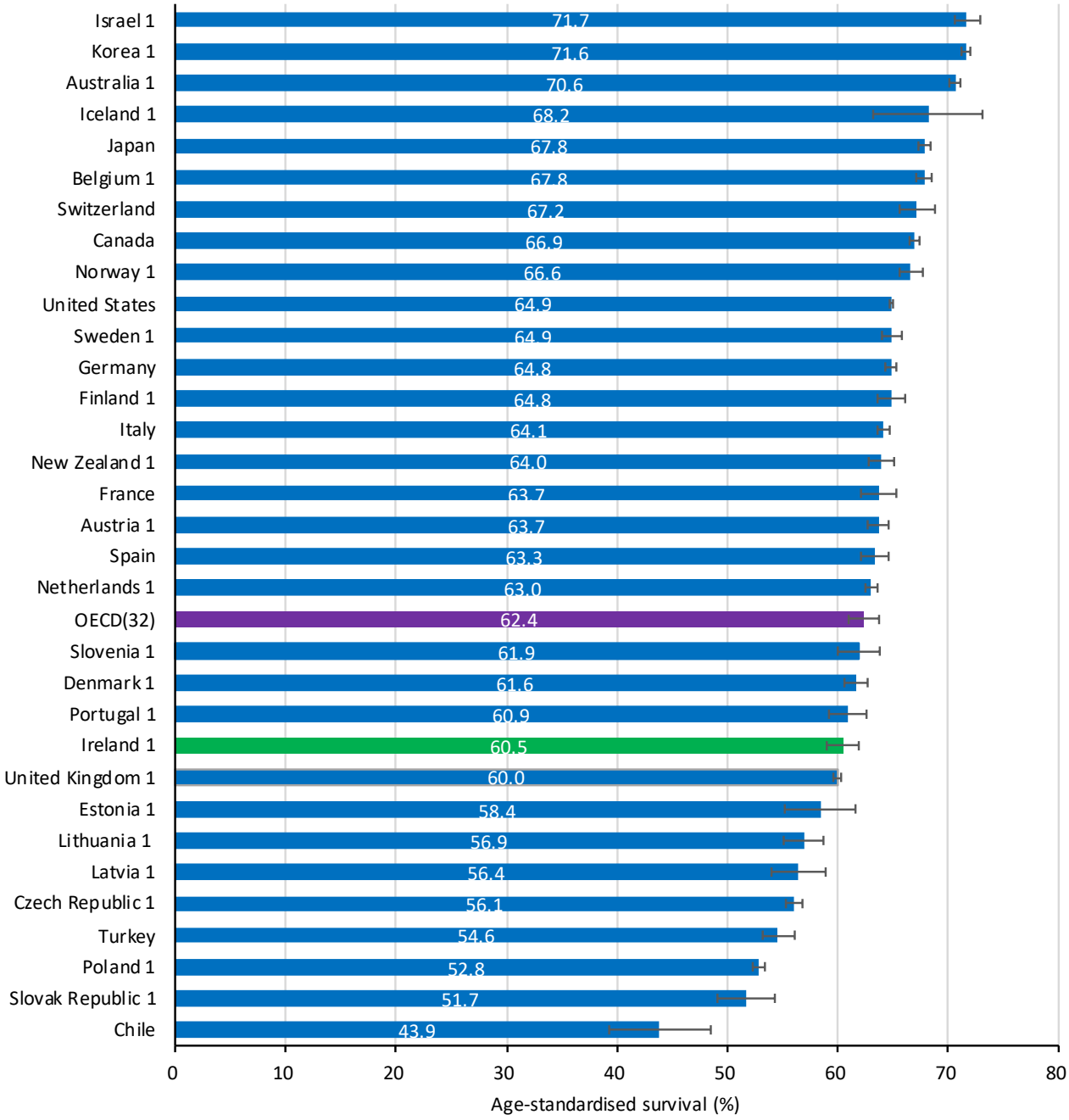
See appendix for detailed indicator definitions and methodology.

Exclusions:
Patients aged under 15 years or over 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.

Cancer registration is a dynamic process and information is continually updated on our database.

As a result, the figures given here may not correspond exactly to those in previous reports or to those previously shown on our website.

Figure 35: Cumulative 5-year age-standardised net survival, colon cancer, 2010-2014 (or nearest period), OECD countries



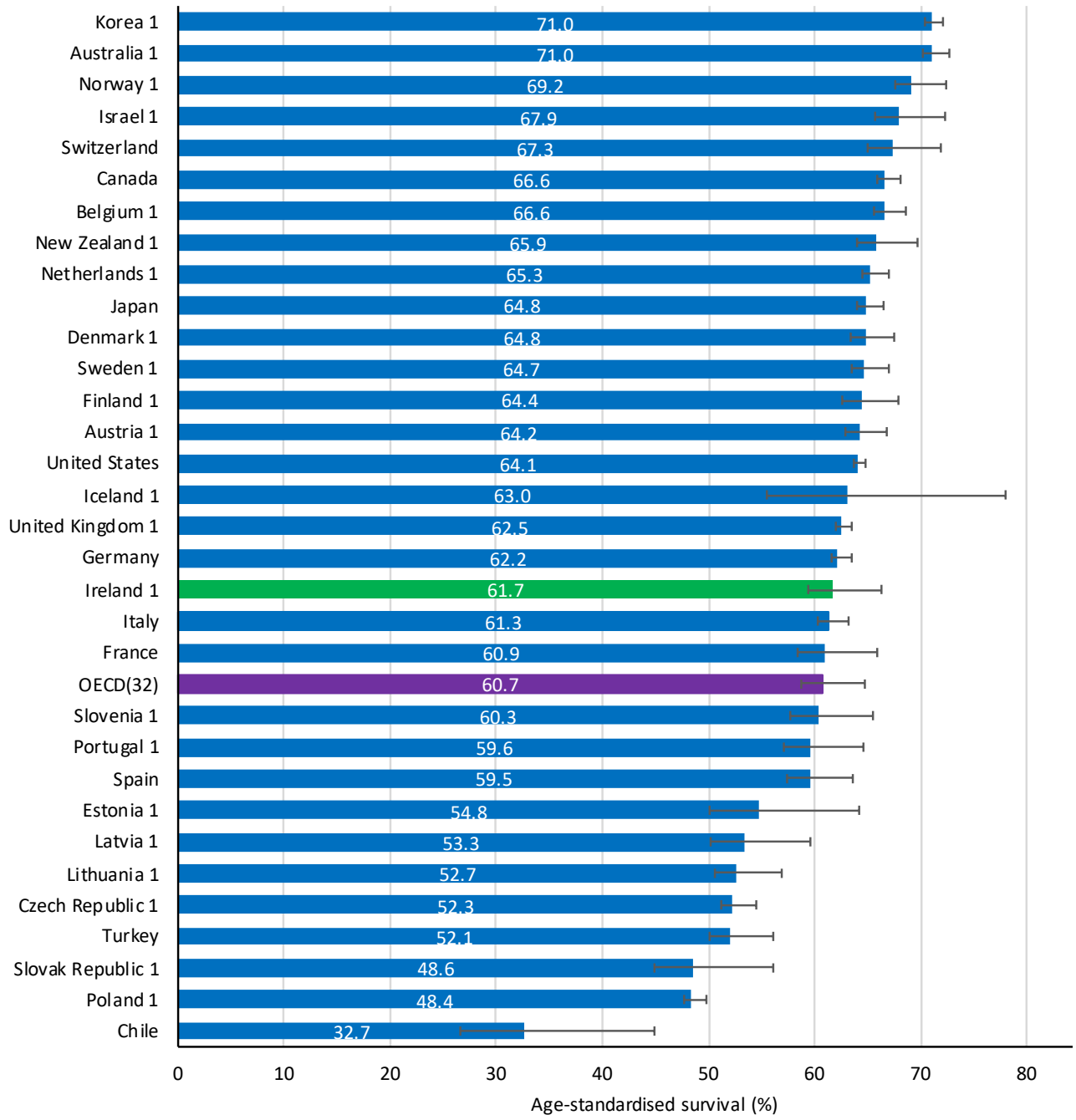
Source: OECD Health Statistics

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 ⊢⊣.

See appendix for detailed indicator definitions and methodology.

[1] Data with 100% national coverage of the population.'

Figure 36: Cumulative 5-year age-standardised net survival, rectal cancer, 2010-2014 (or nearest period), OECD countries



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 ⊢⊣ .

See appendix for detailed indicator definitions and methodology.

[1] Data with 100% national coverage of the population.

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 during the period 2010 – 2014 and 2011 - 2015.

Description

Lung cancer is the leading cause of cancer death in both men and women in Ireland (ECIS - European Cancer Information System, 2019) (Central Statistics Office , 2019) (National Cancer Registry Ireland, 2015). Incidence rates of lung cancer in the most deprived areas in Ireland are more than twice as high as rates in the least deprived areas, reflecting the strong association with smoking. (National Cancer Registry Ireland, 2015)

Lung cancer remains by far the most common cause of death from cancer among men (25% of all cancer deaths across the EU) and the second most common among women (after breast cancer). (OECD/EU, 2018).

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

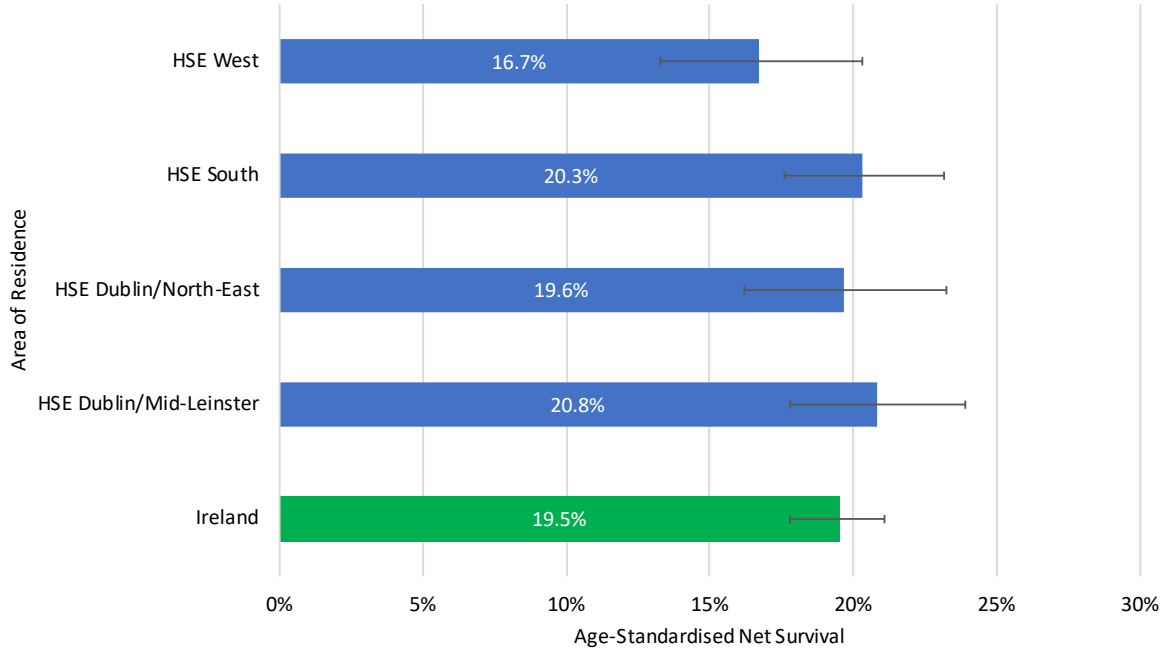
Rationale for the inclusion of indicator

Net survival rates for lung cancer are very poor in comparison with many other cancers, with an age-standardised 1-year survival of 37% and a 5-year survival of 15.3% in the period 2008-2012. (National Cancer Registry Ireland, 2015).

Commentary

- The national 5-year age standardised net lung cancer survival rate for those patients diagnosed between 2011 and 2015 was 19.5%.
- For those diagnosed between 2010 and 2014, th 5-year net survival rate was 17.5% as reported in the CONCORD-3 study.
- 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 37: Cumulative 5-year age-standardised net survival in Ireland for lung cancer patient diagnosed in 2011-2015



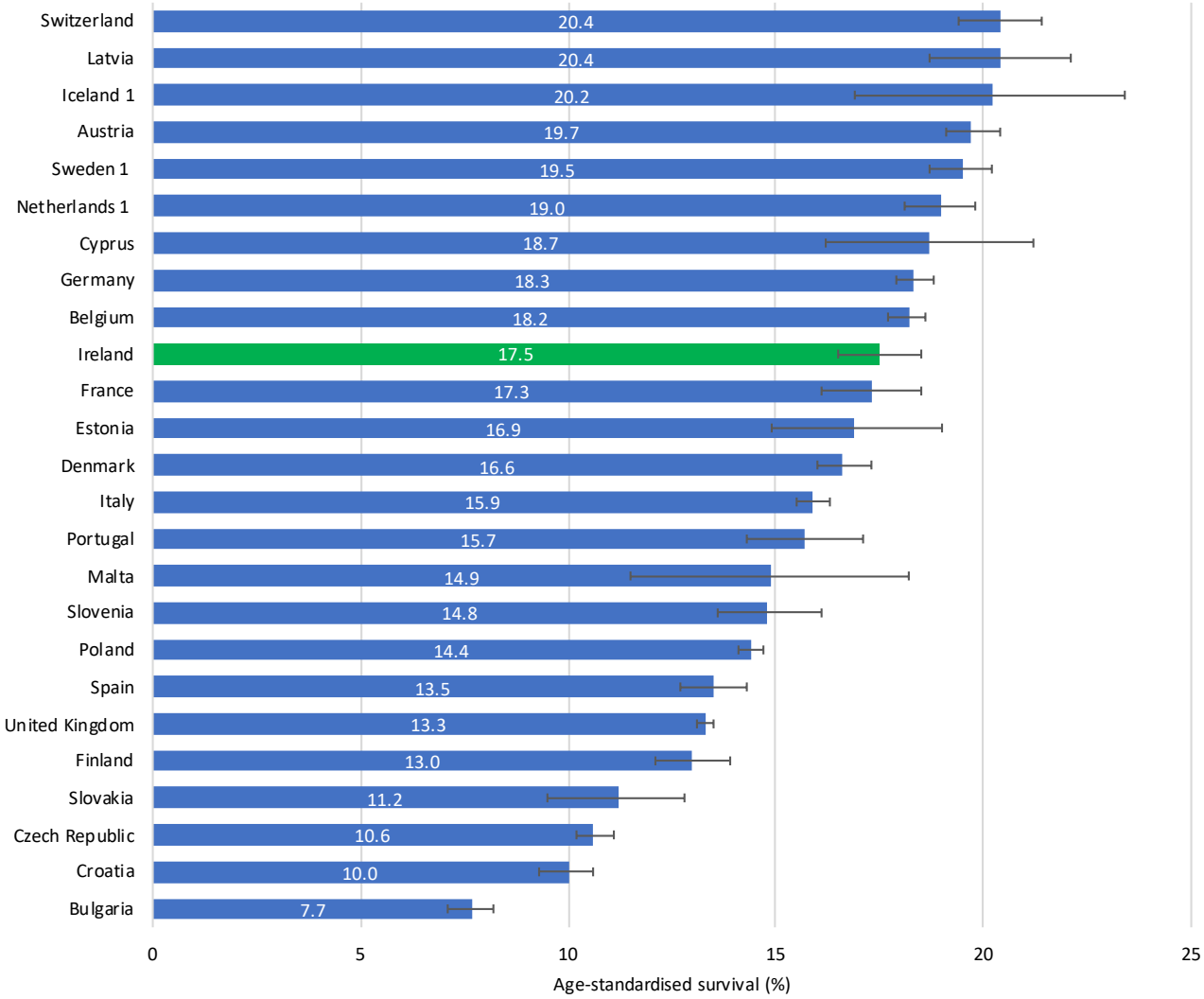
Source: National cancer Registry of Ireland

Notes:
*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.

Exclusions:
Patients aged under 15 years or over 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.

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

Figure 38: Cumulative age-standardised 5-year net survival, lung cancer, 2010-2014 (or nearest period), European countries



Source: National Cancer Registry of Ireland; Global surveillance of trends in cancer survival 2000–14(CONCORD-3): analysis of individual records for 37,513,025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries.

Notes:
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 ⊢⊣.

See appendix for detailed indicator definitions and methodology.

[1] Data with 100% coverage of the national population.

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 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 [41].

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 [43, 44, 45].

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. The National Cancer Strategy 2017 - 2026 envisages the complete centralisation of cancer surgical services by 2020.

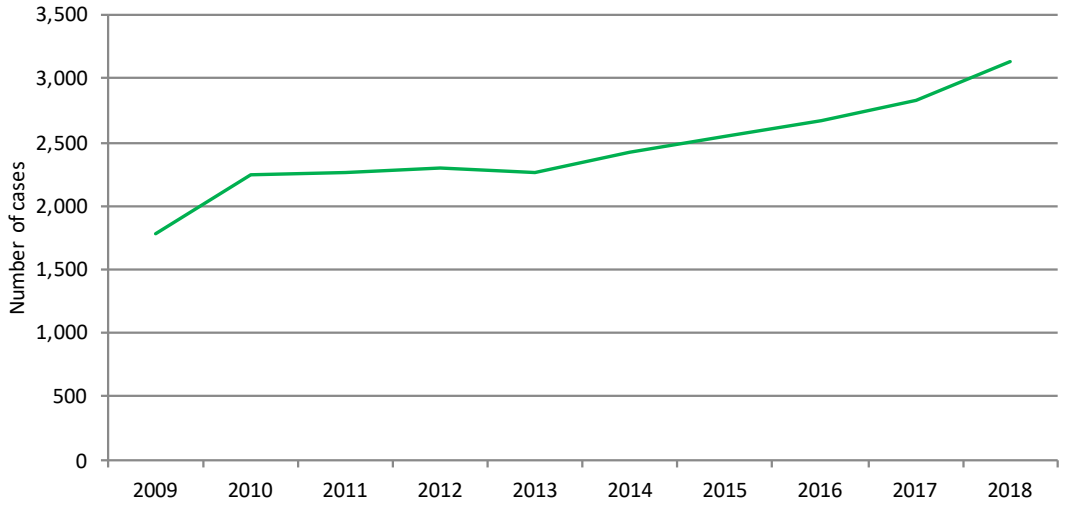
Rationale for the inclusion of indicator

Breast cancer is the most common malignant tumour diagnosed in women in Ireland, with approximately 2,800 cases diagnosed each year. This represents almost one third of all major cancers diagnosed in women.

Commentary

- Figure 39 shows breast cancer surgical activity in the designated cancer centres 2009-2018. The number of cases has increased each year since 2013. In 2018, there were 3,133 breast cancer surgeries nationally.
- Figure 40 shows the proportion of all breast cancer surgery nationally that is undertaken in designated cancer centres 2009-2018, in patients whose principal diagnosis is breast cancer. The graph demonstrates that since 2010 almost all breast cancer surgical activity has been centralised to the designated cancer centres.

Figure 39: Number of breast cancer surgeries undertaken in designated cancer centres in patients whose principal diagnosis is breast cancer, 2009-2018

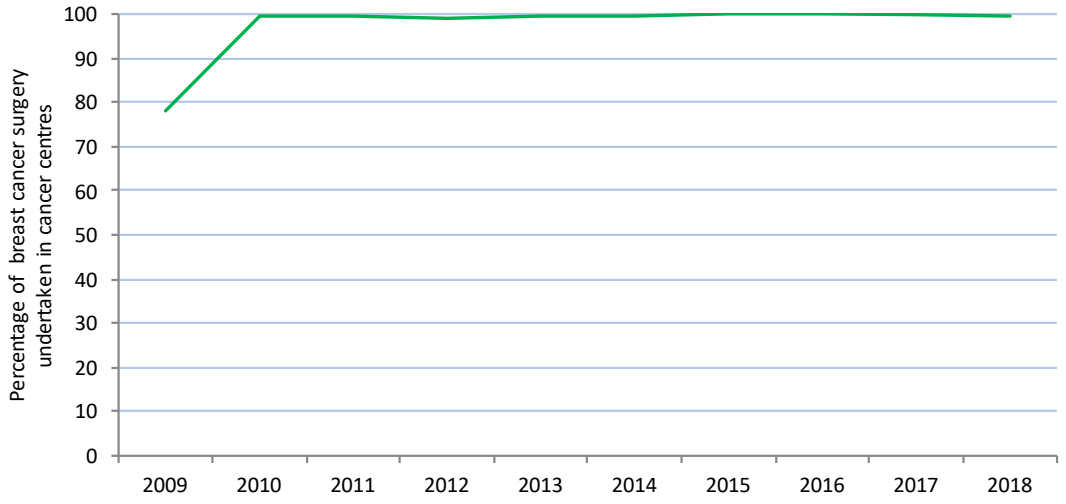


Source: Hospital In-patient Enquiry (HIPE)

Notes: Includes ductal carcinoma in situ.

See appendix for detailed indicator definitions and methodology.

Figure 40: Proportion of breast cancer surgery nationally in patients whose principal diagnosis is breast cancer undertaken in designated cancer centres, 2009-2018



Source: Hospital In-patient Enquiry (HIPE)

Notes: Includes ductal carcinoma in situ.

See appendix for detailed indicator definitions and methodology.

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 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; subject to data availability, it is intended that future editions of this report will present the number of elective and emergency procedures performed and will report this data by hospital. 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.

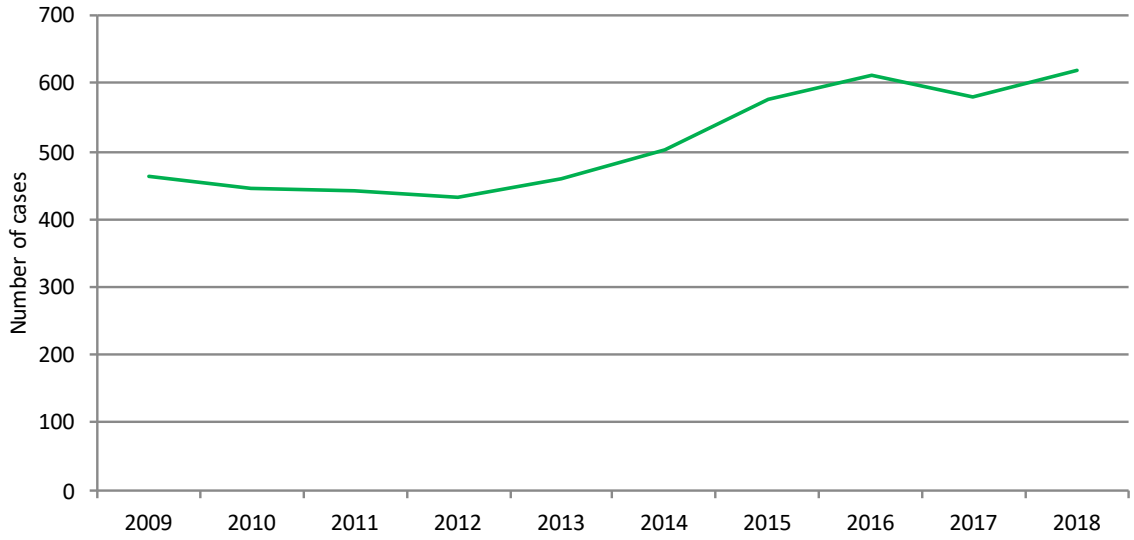
Rationale for the inclusion of indicator

There are approximately 2,500 cases of colorectal cancer diagnosed each year in Ireland. International evidence suggests that patients with colorectal cancer experience better overall five year survival when treated in a high volume hospital by a high-volume specialist surgeon [46].

Commentary

- Figure 41 shows the number of colon cancer surgical procedures undertaken in the designated cancer centres 2009-2018, in patients whose principal diagnosis is colon cancer. The annual number of cases undertaken in a designated cancer centre increased from 462 in 2009 to 619 in 2018. In 2017, there was a decline in this number to 580, however, this number has since increased.
- Figure 42 shows the proportion of this activity that is undertaken in the designated cancer centres. This percentage has dropped from 2016 (63.5%) to 2017 (59.0%), as the number of surgical cases for colon cancer dropped. However, this increased in 2018 to the same proportion seen in 2016: 63.5%.

Figure 41: Number of colon cancer surgeries undertaken in designated cancer centres in patients whose principal diagnosis is colon cancer, 2009-2018

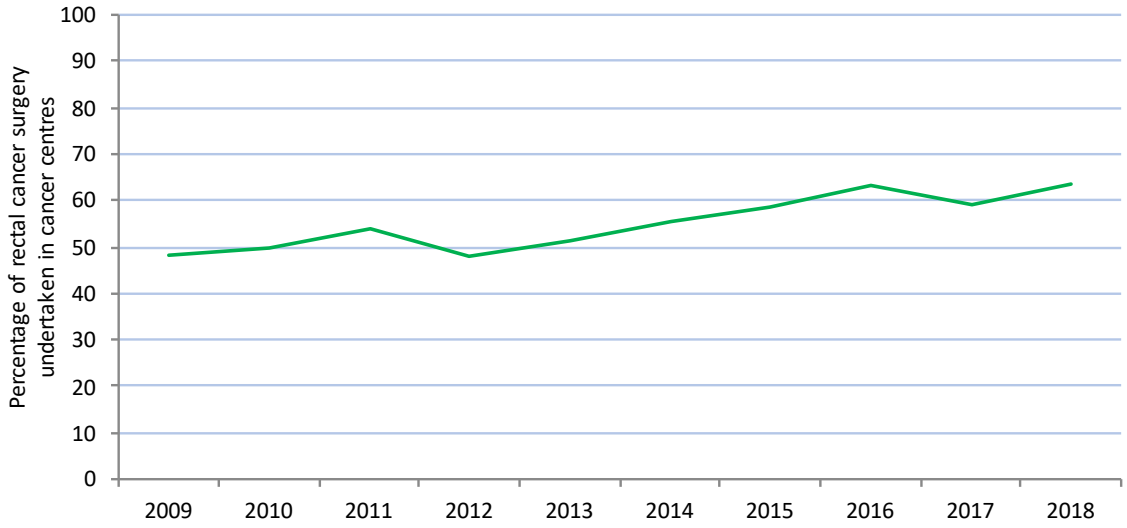


Source: Hospital In-patient Enquiry System

Notes: 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 addition procedure codes related to colon cancer surgical treatment. See appendix for definitions and methodology.

See appendix for detailed indicator definitions and methodology.

Figure 42: Proportion of colon cancer surgery nationally in patients whose principal diagnosis is colon cancer undertaken in designated cancer centres, 2009-2018



Source: Hospital In-patient Enquiry System

Notes: 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 addition procedure codes related to colon cancer surgical treatment. See appendix for definitions and methodology.

See appendix for detailed indicator definitions and methodology.

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 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 National Cancer Strategy 2017 – 2026 envisages the complete centralisation of cancer surgical services by 2020.

The data presented in this report includes both elective (planned) and emergency procedures; subject to data availability. It is intended that future editions of this report will present the number of elective and emergency procedures performed and will report this data by hospital. All cancers diagnosed under the national screening programme, BowelScreen, are treated electively in the designated cancer centres.

It is noted that in 2008, the Royal College of Surgeons of Ireland (RCSI), in collaboration with the National Cancer Registry of Ireland (NCRI) and funded by the National Cancer Control Programme (NCCP), undertook a retrospective audit of all rectal cancers that underwent surgery in 2007 in a public hospital in Ireland. Following the audit, the Irish Association of Coloproctology recommended that:

- Rectal cancer surgery should not be performed in hospitals where fewer than 20 rectal cancer surgeries are carried out annually.
- Rectal cancer surgery should be performed in all eight designated cancer centres with provisos in relation to number of operations, adherence to guidelines, surgeon training, nomination of a lead surgeon, discussion of patients at multidisciplinary team meetings and participation in audit.
- Rectal cancer surgery could be performed in a small number of high volume non-designated centres, with similar provisos as the cancer centres, on an interim basis [47].

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.

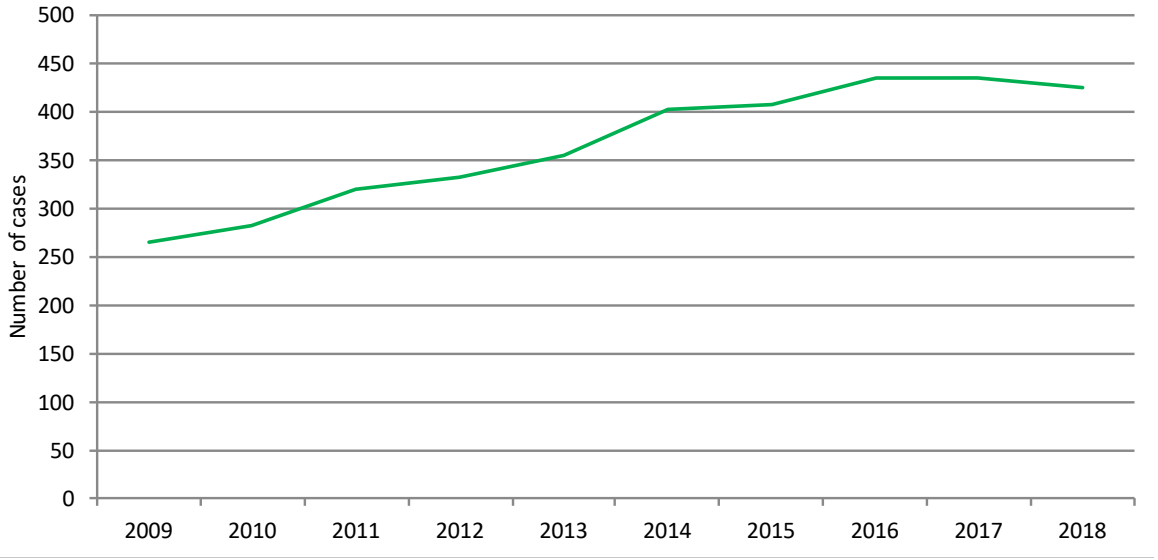
Rationale for the inclusion of indicator

International evidence advises that patients with cancer of the rectum experience better overall five-year survival when treated in a high-volume hospital by a high-volume surgeon [46].

Commentary

- Figure 43 shows the number of rectal cancer surgical procedures undertaken in the designated cancer centres 2009-2018, in patients whose principal diagnosis is cancer of the rectum. The number of surgeries in designated cancer centres increased annually from 2009 (265 cases) to 2018 (425 cases).
- Figure 44 shows the proportion of this activity that is undertaken in the designated cancer centres; this proportion increased from 50% of all activity undertaken in 2009 to 82% in 2018.

Figure 43: Number of rectal cancer surgeries undertaken in designated cancer centres in patients whose principal diagnosis is rectal cancer, 2009-2018

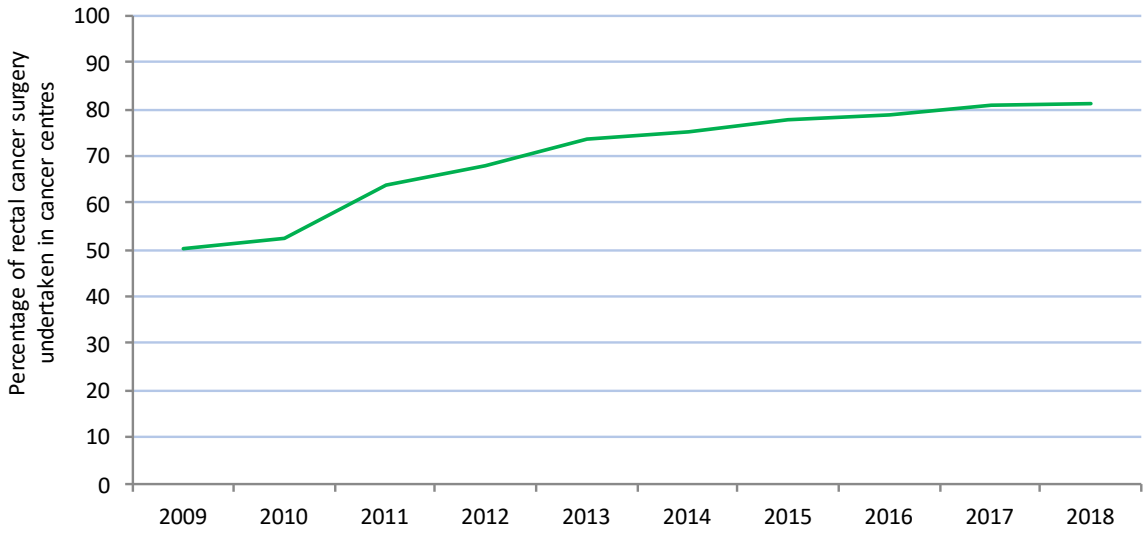


Source: Hospital In-Patient Enquiry

Notes: 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 addition procedure codes related to colon cancer surgical treatment. See appendix for definitions and methodology.

See appendix for detailed indicator definitions and methodology.

Figure 44: Proportion of rectal cancer surgery nationally in patients whose principal diagnosis is rectal cancer undertaken in designated cancer centres, 2009-2018



Source: Hospital In-Patient Enquiry

Notes: 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 addition procedure codes related to colon cancer surgical treatment. See appendix for definitions and methodology.

See appendix for detailed indicator definitions and methodology.

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 damages the heart muscle, weakening its function or stopping it altogether. Evidence links the processes of care for AMI, such as thrombolysis and early treatment with aspirin and beta-blockers, 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.

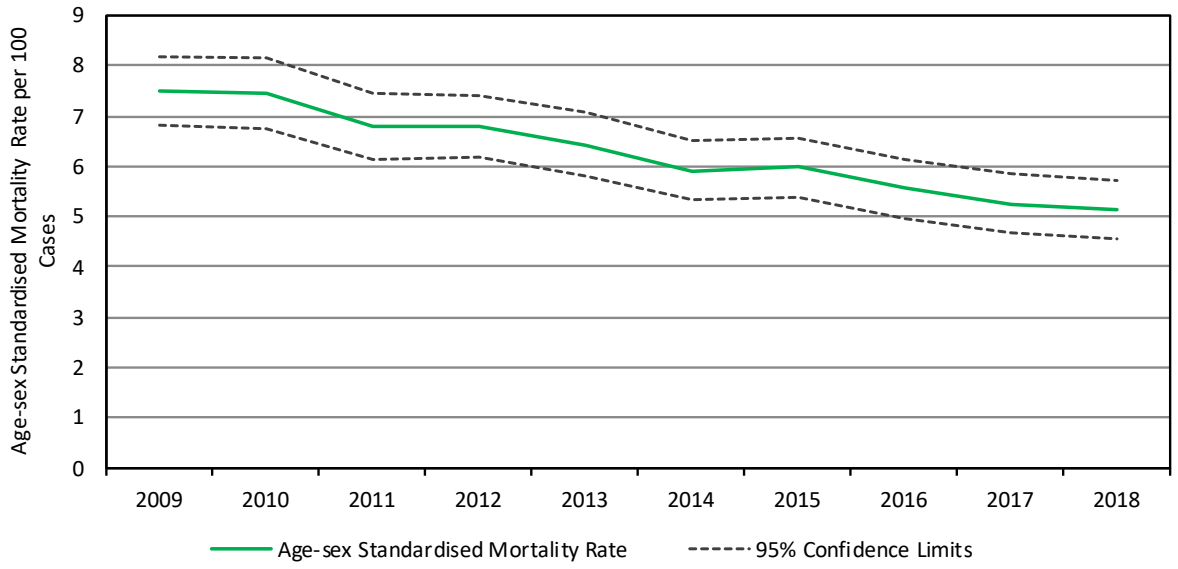
Rationale for the inclusion of indicator

By 2020 the number of adults with clinically diagnosed coronary heart disease is expected to rise to more than 103,000 [48]. One of the potential consequences for those with heart disease is that they 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) following AMI over the last 10 years (2009 to 2018) is shown below. Between 2009 and 2018, there was a 30% reduction in the age-sex standardised in-hospital mortality rates within 30 days of admission for AMI in this time (7.5 in 2009 to 5.1 in 2018).
- In 2015, (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. 6.4 deaths per 100 cases admitted in Ireland, compared to the OECD average of 7.5 deaths per 100 cases admitted), although this difference was not statistically significant.
- Reviewing the three year period from 2016-2018, 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) 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,
  e) variations in the quality of care delivered in 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.

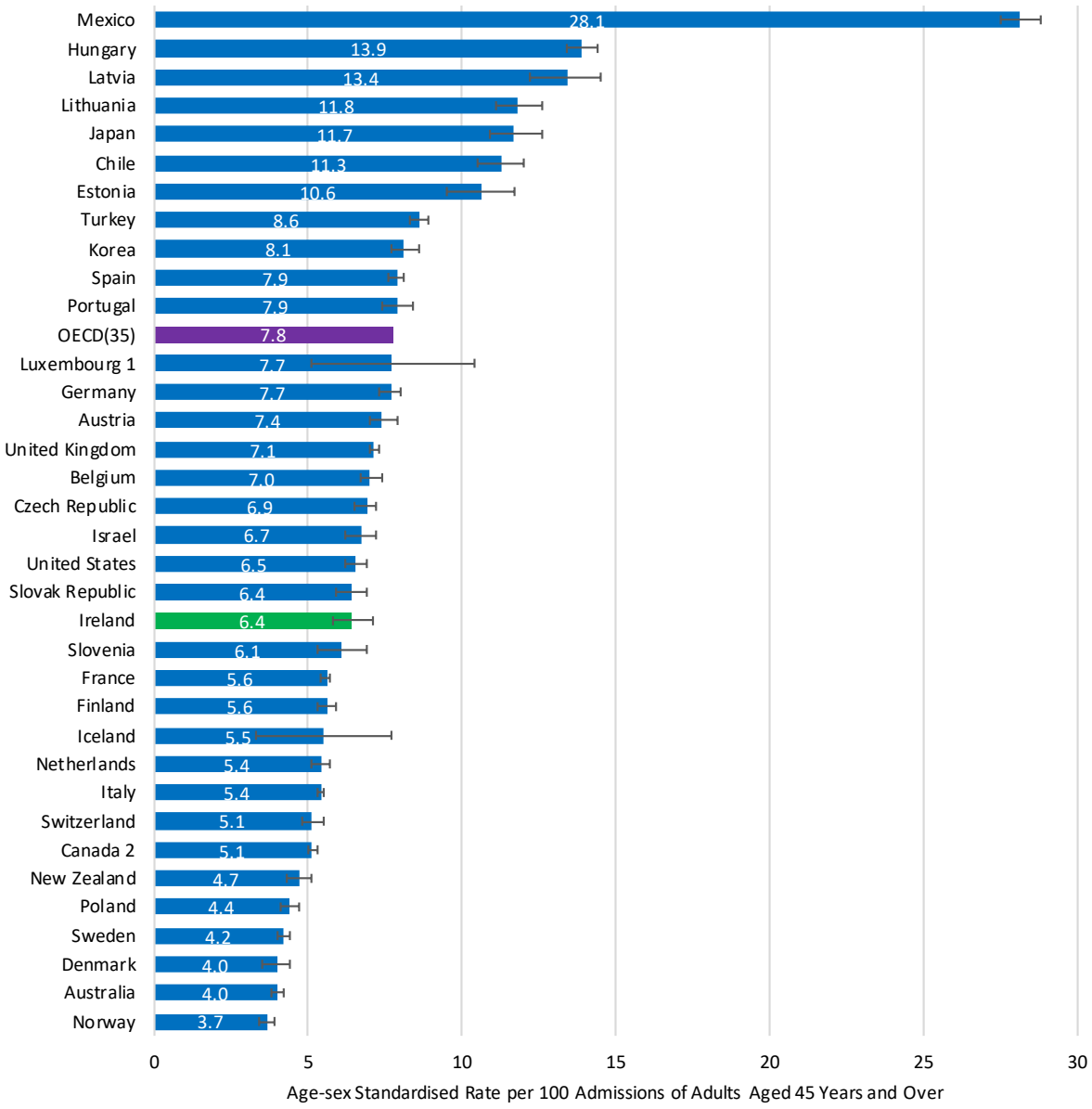
Figure 45: Age-sex standardised in-hospital mortality rates within 30 days of admission for AMI, 2009 – 2018



Source: Hospital In-Patient Enquiry

Note: See appendix for detailed indicator definitions and methodology.

Figure 46: Age-sex standardised in-hospital mortality rates within 30 days of admission for AMI for selected OECD countries, 2015 (or nearest year)



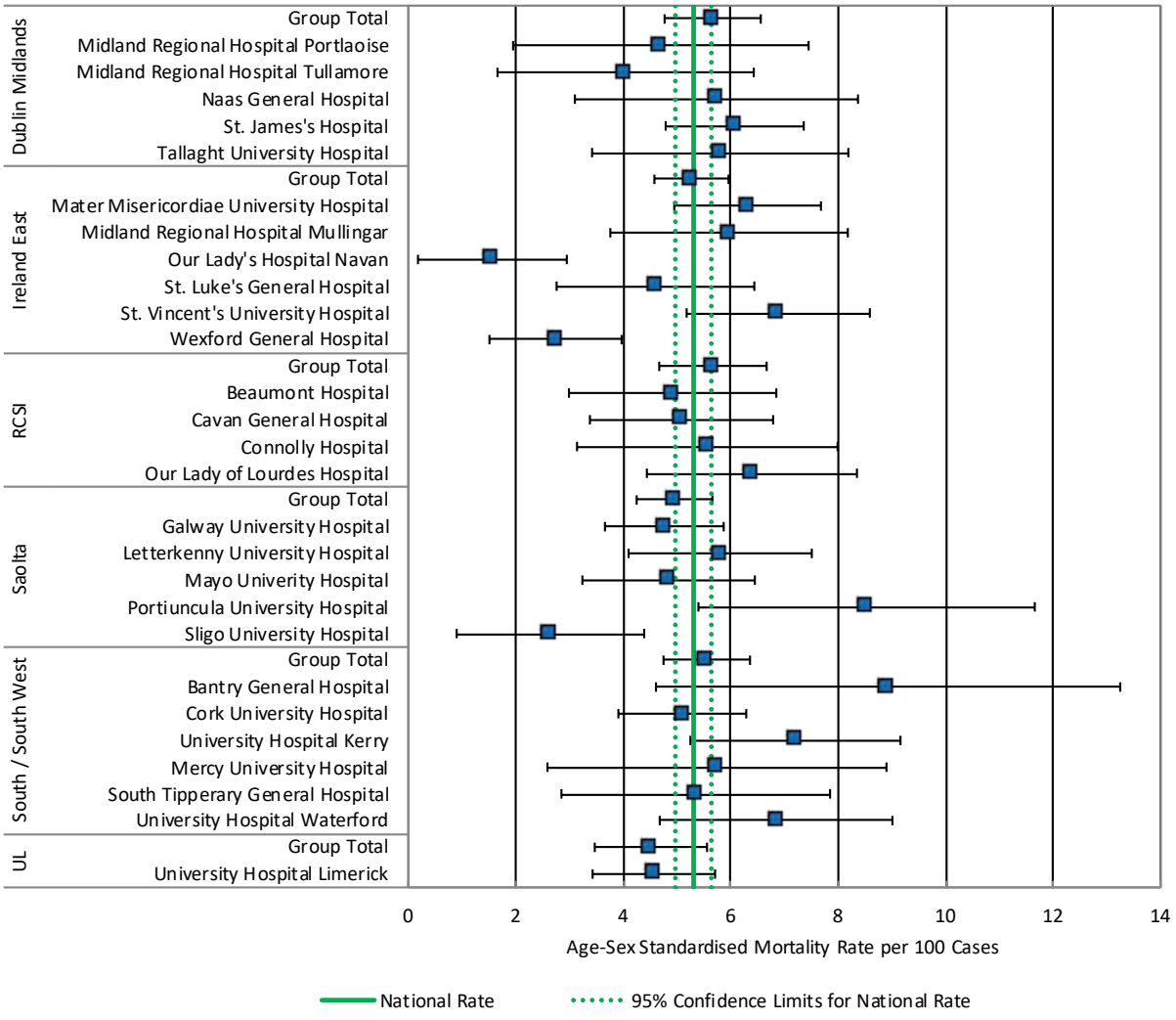
Source: Hospital In-Patient Enquiry

Note: 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 ⊢⊣.

See appendix for detailed indicator definitions and methodology.

[1] Three year average
[2] Results do not include deaths outside of acute care hospitals.

Figure 47: Age-sex standardised in-hospital mortality rates within 30 days of admission for AMI by hospital group and hospital, 2016-2018



Source: Hospital In-Patient Enquiry

Notes: 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 less than 100 cases, although the data for these hospitals have been included in the calculation of the national 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.

See appendix for detailed indicator definitions and methodology.

Table 14: Age-sex standardised in-hospital mortality within 30 days of admission for AMI by hospital group and hospital, 2016 – 2018

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	**3,340**	**5.66**	**4.77**	**6.56**
St. James's Hospital	1,820	6.07	4.79	7.36
Tallaght University Hospital	651	5.81	3.42	8.19
Naas General Hospital	343	5.74	3.10	8.37
Midland Regional Hospital Portlaoise	273	4.70	1.95	7.45
Midland Regional Hospital Tullamore	253	4.04	1.66	6.43
Ireland East	**4,329**	**5.27**	**4.58**	**5.96**
Mater Misericordiae University Hospital	1,586	6.32	4.95	7.68
St. Vincent's University Hospital	804	6.88	5.18	8.59
St. Luke's General Hospital	560	4.60	2.76	6.44
Wexford General Hospital	635	2.74	1.51	3.97
Our Lady's Hospital Navan	378	1.56	0.18	2.95
Midland Regional Hospital Mullingar	319	5.97	3.76	8.18
St. Columcille's Loughlinstown	18	-	-	-
St. Michael's Hospital	29	-	-	-
RCSI	**2,093**	**5.67**	**4.67**	**6.67**
Beaumont Hospital	607	4.92	2.99	6.85
Our Lady of Lourdes Hospital	540	6.40	4.44	8.35
Connolly Hospital	414	5.57	3.14	7.99
Cavan General Hospital	532	5.09	3.38	6.79
Saolta	**3,624**	**4.95**	**4.25**	**5.66**
Galway University Hospital	1,707	4.77	3.66	5.87
Mayo University Hospital	618	4.85	3.24	6.45
Letterkenny University Hospital	557	5.80	4.10	7.51
Sligo University Hospital	434	2.64	0.90	4.39
Portiuncula University Hospital	300	8.53	5.4	11.66
Roscommon University Hospital	8	-	-	-
South / South West	**3,456**	**5.56**	**4.75**	**6.36**
Cork University Hospital	1,800	5.10	3.91	6.29
University Hospital Waterford	564	6.85	4.68	9.01
University Hospital Kerry	377	7.21	5.25	9.16
South Tipperary General Hospital	276	5.35	2.85	7.85
Mercy University Hospital	237	5.75	2.59	8.90
Bantry General Hospital	148	8.93	4.28	13.58
Mallow General Hospital	54	-	-	-
UL Hospitals	**1,537**	**4.51**	**3.47**	**5.56**
University Hospital Limerick	1,387	4.57	3.43	5.71
Ennis Hospital	68	-	-	-
Nenagh Hospital	64	-	-	-
St. Johns Hospital	18	-	-	-
Total for All Hospitals	**18,379**	**5.29**	**4.96**	**5.63**

Source: Hospital In-Patient Enquiry
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 less than 100 cases, although the data for these hospitals have been included in the calculation of the national 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 confidence intervals. See Appendix 3 for detailed indicator definitions and methodology.

Stroke admissions to hospitals with stroke units

Description

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

Rationale for the inclusion of indicator

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). Stroke is a leading cause of morbidity and mortality in Ireland; over 7,000 people in Ireland are hospitalised following stroke each year [49] and approximately 2,000 people die as a result of stroke each year.

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.

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 [36]. 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 [50].

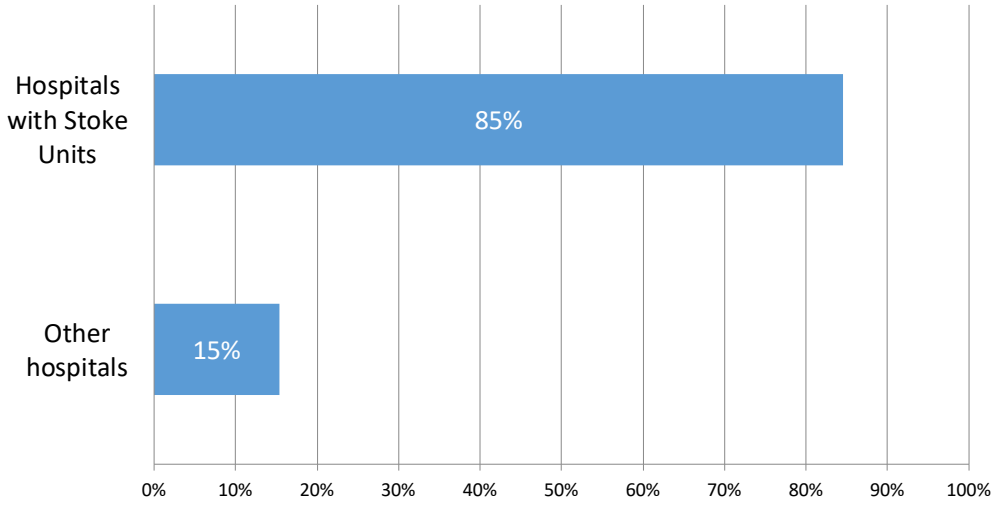
The National Clinical Programme for Stroke reports that 22 hospitals provide acute stroke unit care.

The HSE has a KPI for stroke unit care of 90% admission of acute stroke patients to stroke units. The current level of performance in this regard is 70%. A lack of acute stroke unit beds for case numbers presenting has been reported in hospital sites. This is being quantified in the new national stroke strategy.

Commentary

- Figure 48 shows the proportion of patients whose principal diagnosis is stroke who were admitted to a hospital with a stroke unit in 2018. Although this does not mean that all these patients were admitted directly to the stroke unit, it does suggest that these patients had access to an expert stroke team.
- In 2018, 85% of stroke patients were admitted to a hospital with a stroke unit. This is a slight increase on figures seen in 2015, 2016 and 2017, where 83% of patients with a principal diagnosis of stroke were admitted to hospitals with stroke units.

Figure 48: The proportion of patients whose principal diagnosis is stroke who were admitted to a hospital with a stroke unit, 2018



Source: Hospital In-Patient Enquiry

In-hospital mortality within 30 days for haemorrhagic stroke

Description

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.

Rationale for the selection of indicator

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). Stroke is a leading cause of morbidity and mortality in Ireland; over 7,000 people in Ireland are hospitalised following stroke each year [49] and approximately 2,000 people die as a result of stroke each year.

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.

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 [36]. 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 such as heart rate and rhythm, arterial oxygen saturation, blood pressure and blood glucose [50].

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.

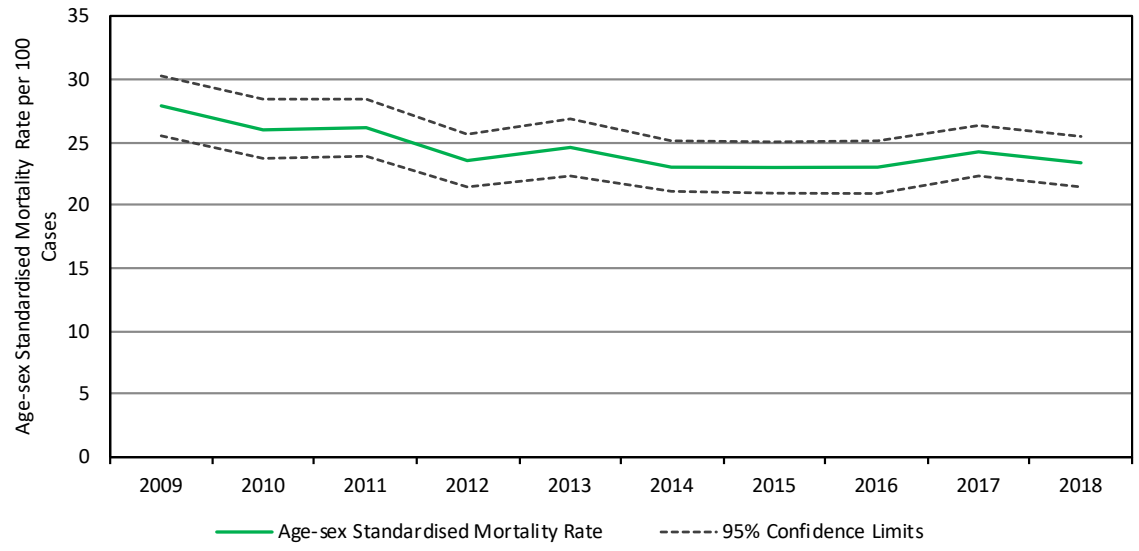
Commentary

- The age-sex standardised in-hospital mortality rate within 30 days of admission for haemorrhagic stroke has reduced by 16% over the ten year period from 2009 to 2018, with 27.9 deaths per 100 cases admitted in 2009 compared to 23.4 deaths per 100 cases admitted in 2018.
- In 2016, the average age-sex standardised in-hospital mortality rate within 30 days of admission with haemorrhagic stroke in Ireland was above the OECD average rate (i.e. 24.6 deaths per 100 cases for Ireland in that year compared to the OECD average of 22.8 deaths per 100 cases).
- During the three year period from 2016-2018, the age-sex standardised in-hospital mortality rate for three hospitals (in orange, Figure 51) 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 (Table 15, Figure 51).
- 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,
  e) variations in quality of care delivered in 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.
- The National Clinical Programme for Stroke is clear 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 but only 70% of acute stroke cases nationally were admitted to a stroke unit, well below the 90% KPI. Some sites report that a lack of acute stroke unit beds remain a challenge for individual hospital site activity e.g. Cork University Hospital. 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. Certain sites such as Beaumont hospital are tertiary referral centres for suitable cases of intracerebral haemorrhage and thus have higher rates of admission for intracerebral haemorrhage on a largely 'treat and return' basis which may influence figures.. In 2018, 85% of patients experiencing a stroke in Ireland were admitted to a hospital with a stroke unit. 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.

  The National Office of Clinical Audit (NOCA) has recently announced that the Irish national Audit for Stroke will now sit within the National Cardiovascular Disease Audit Programme in NOCA. In time, this may give additional information on the quality of stroke care provided.

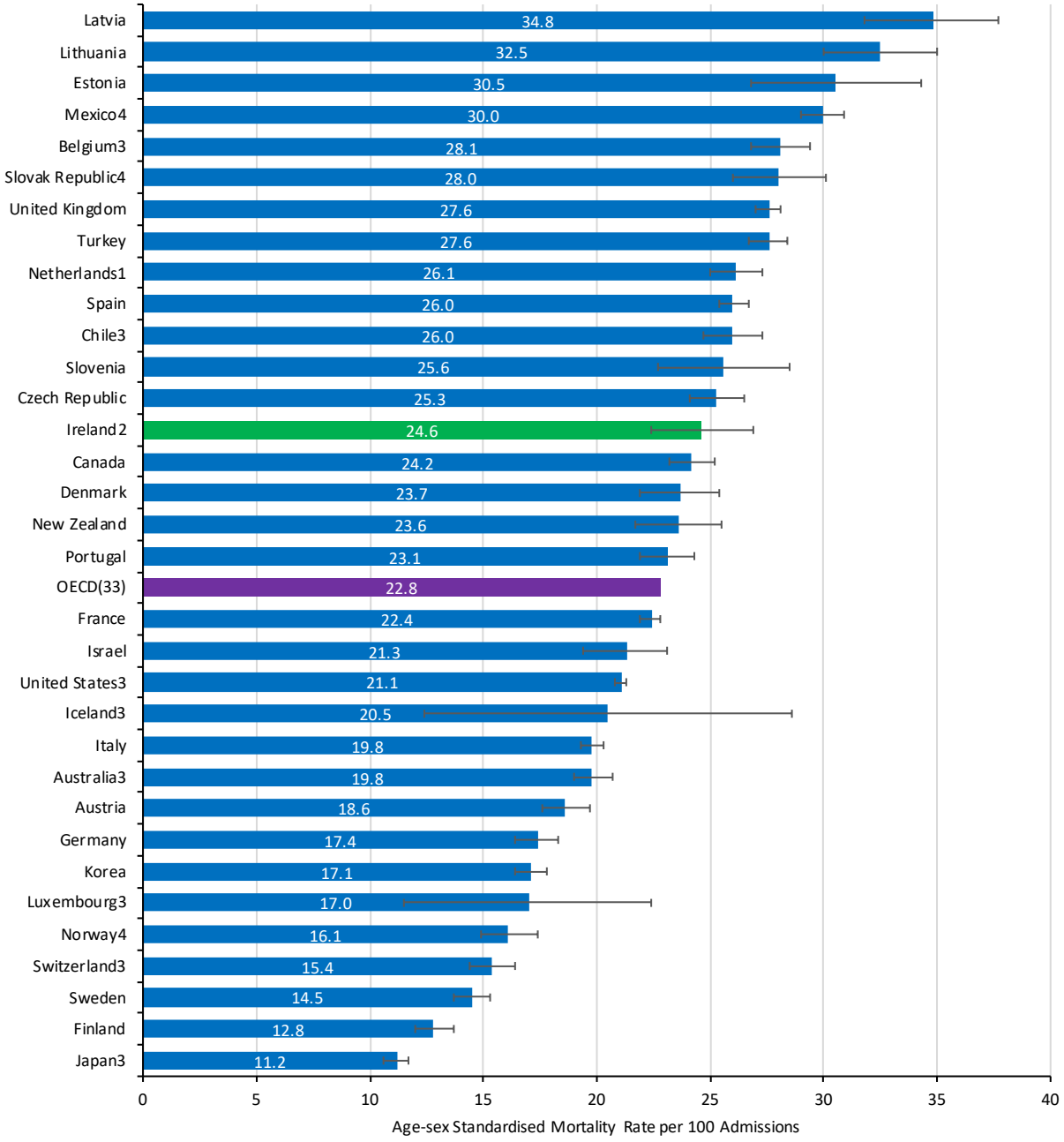
Figure 49: Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke, 2009 – 2018



Source: Hospital In-Patient Enquiry

Note: See appendix for detailed indicator definitions and methodology.

Figure 50: Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke for selected OECD countries, 2016 (or nearest year)



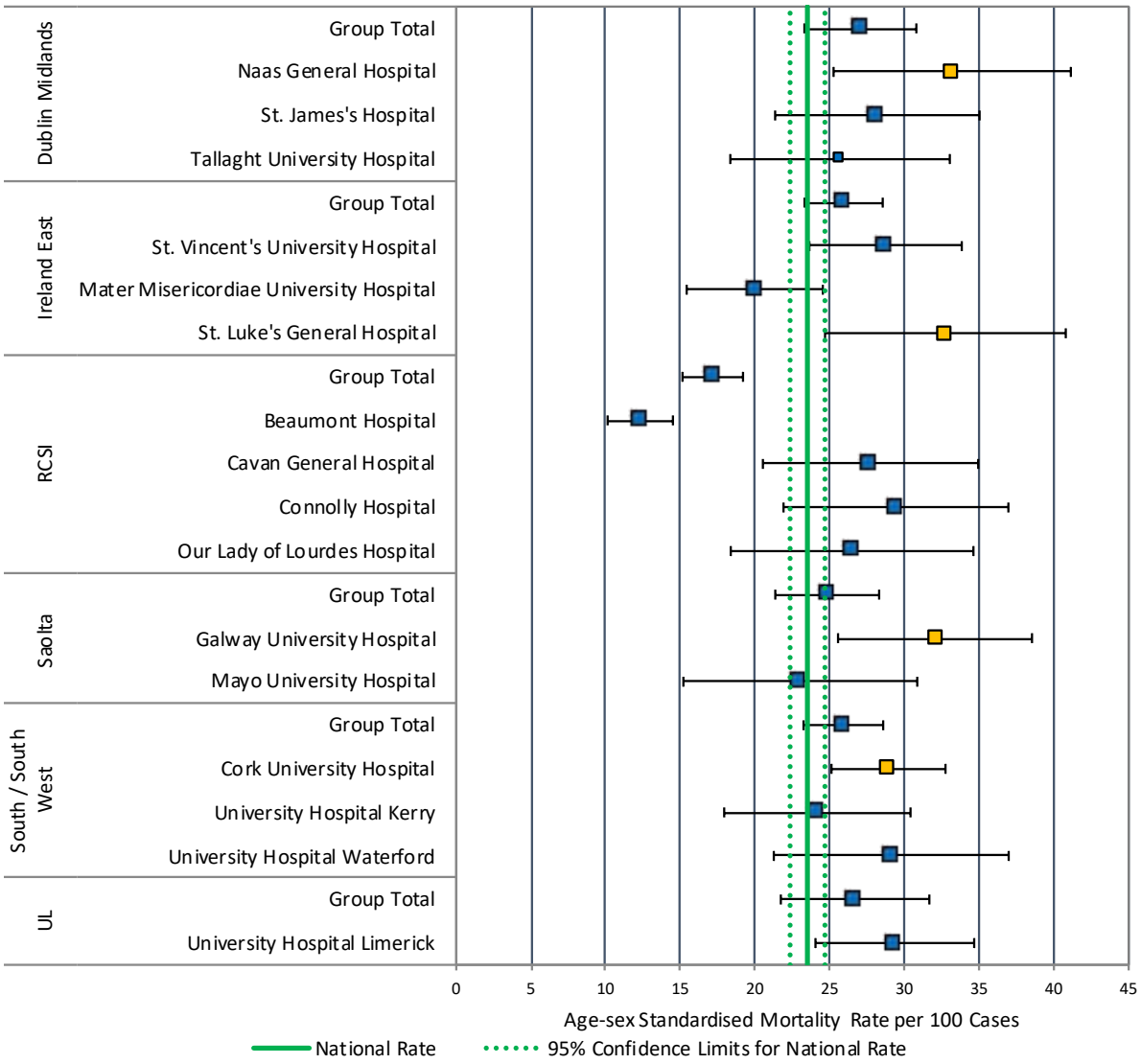
Source: OECD Health Statistics

Notes: [1]2011, [2]2012, [3]2013, [4]2014
Norway, Slovak Republic and Mexico deviate from the OECD definition.

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 ⊢⊣ .

See appendix for detailed indicator definitions and methodology.

Figure 51: Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke by hospital group and hospital, 2016 – 2018



Source: Hospital In-Patient Enquiry

Notes:
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 less than 100 cases, although the data for these hospitals have been included in the calculation of the national 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.

See appendix for detailed indicator definitions and methodology.

Table 15: Age-sex standardised in-hospital mortality rates within 30 days of admission for haemorrhagic stroke by hospital group and hospital, 2016-2018

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	**548**	**27.05**	**23.30**	**30.79**
Midland Regional Hospital Portlaoise	33	-	-	-
Midland Regional Hospital Tullamore	68	-	-	-
Naas General Hospital	126	33.19	25.25	41.13
St. James's Hospital	183	28.18	21.34	35.02
Tallaght University Hospital	138	25.69	18.34	33.03
Ireland East	**1,018**	**25.93**	**23.31**	**28.54**
Mater Misericordiae University Hospital	301	19.98	15.42	24.53
Midland Regional Hospital Mullingar	82	-	-	-
Our Lady's Hospital Navan	67	-	-	-
St. Columcille's Loughlinstown	17	-	-	-
St. Luke's General Hospital	107	32.73	24.68	40.79
St. Michael's Hospital	13	-	-	-
St. Vincent's University Hospital	325	28.73	23.63	33.83
Wexford General Hospital	106	26.57	18.88	34.27
RCSI Hospitals	**1,494**	**17.16**	**15.14**	**19.19**
Beaumont Hospital	1,131	12.31	10.13	14.50
Cavan General Hospital	102	28.26	20.56	35.97
Connolly Hospital	131	29.43	21.90	36.95
Our Lady of Lourdes Hospital	130	26.49	18.37	34.61
Saolta	**590**	**24.83**	**21.35**	**28.30**
Galway University Hospital	196	32.04	25.55	38.53
Letterkenny University Hospital	94	-	-	-
Mayo University Hospital	122	23.03	15.20	30.85
Portiuncula University Hospital	74	-	-	-
Roscommon University Hospital	<10	-	-	-
Sligo University Hospital	97	28.73	22.48	34.97
South / South West Hospital Group	**980**	**25.90**	**23.24**	**28.57**
Bantry General Hospital	43	-	-	-
Cork University Hospital	541	28.93	25.11	32.74
University Hospital Kerry	115	24.17	17.93	30.40
Mallow General Hospital	10	-	-	-
Mercy University Hospital	58	-	-	-
South Tipperary General Hospital	99	-	-	-
University Hospital Waterford	114	29.11	21.25	36.97
UL Hospitals	**284**	**26.69**	**21.72**	**31.66**
Ennis Hospital	12	-	-	-
Nenagh Hospital	18	-	-	-
St. Johns Hospital	8	-	-	-
University Hospital Limerick	250	29.35	24.04	34.66
Total for All Hospitals	**4,914**	**23.50**	**22.34**	**24.67**

Source: Hospital In-Patient Enquiry
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 less than 100 cases, although the data for these hospitals have been included in the calculation of the national 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. *Due to the low number of cases for certain hospitals, data in the above table has been suppressed in a number of cells for data protection reasons.

In-hospital mortality within 30 days for ischaemic stroke

Description

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.

Rationale for the selection of indicator

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). Stroke is a leading cause of morbidity and mortality in Ireland; over 7,000 people in Ireland are hospitalised following stroke each year [49] and approximately 2,000 people die as a result of stroke each year.

An ischaemic stroke is caused by death of brain cells in a localized area due to inadequate blood flow caused by ischaemia (blood clot). Ischaemic strokes account for approximately 85% of all strokes which result in hospitalisation in Ireland annually [51].

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.

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 [36]. 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 such as heart rate and rhythm, arterial oxygen saturation, blood pressure and blood glucose [50].

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.

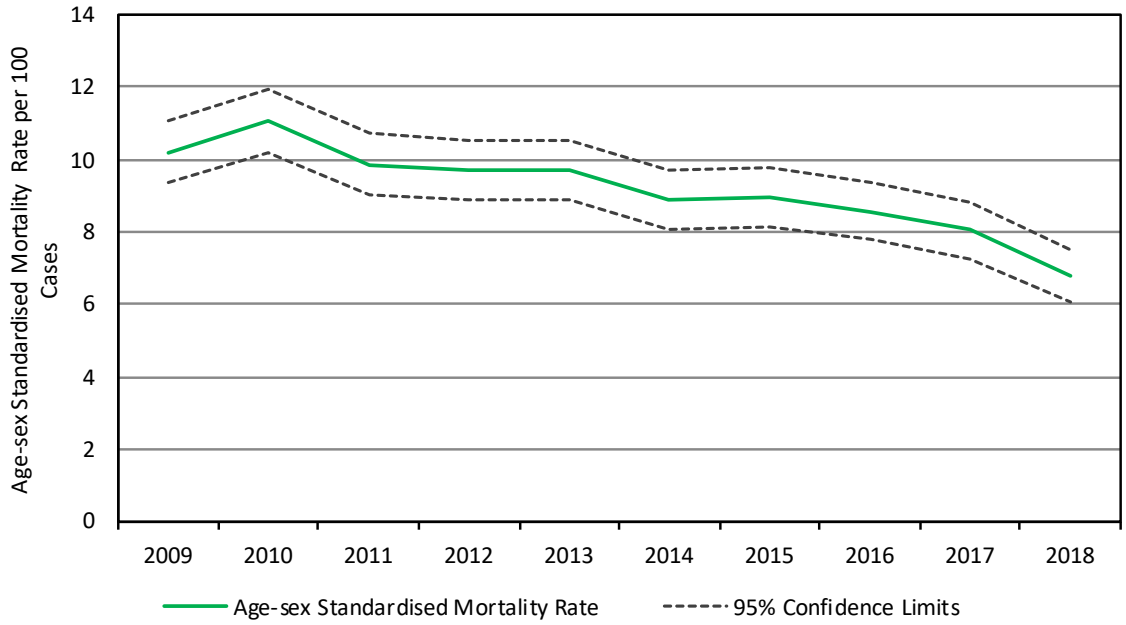
Commentary

- The age-sex standardised in-hospital mortality rate within 30 days of admission for ischaemic stroke decreased from 10.2 deaths per 100 cases admitted in 2009 to 6.8 deaths per 100 cases admitted in 2018, a reduction of 33%.
- In 2015, the average age-sex standardised in-hospital mortality rate within 30 days of admission with ischaemic stroke in Ireland was above the OECD average rate (i.e. 9.7 deaths per 100 cases admitted for Ireland in that year compared to the OECD average of 8.4 deaths per 100 cases admitted).
- During the three-year period from 2016-2018, age-sex standardised in-hospital mortality rate for two hospitals (in orange, Figure 54) were 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 (Table 16 and Figure 54).
- 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,
  e) variations in quality of care delivered in 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.
- The National Clinical Programme for Stroke is clear 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. In 2017, 83% of patients experiencing a stroke in Ireland were admitted to a hospital with a stroke unit. Hospitals with the highest age-sex standardised in-hospital mortality rates for ischaemic stroke should examine the reasons for identified variation including examination of access to core stroke services.

  The National Office of Clinical Audit (NOCA) has recently announced that the Irish National Audit for Stroke will now sit within the National Cardiovascular Disease Audit Programme in NOCA. In time, this may give additional information on the quality of stroke care provided.

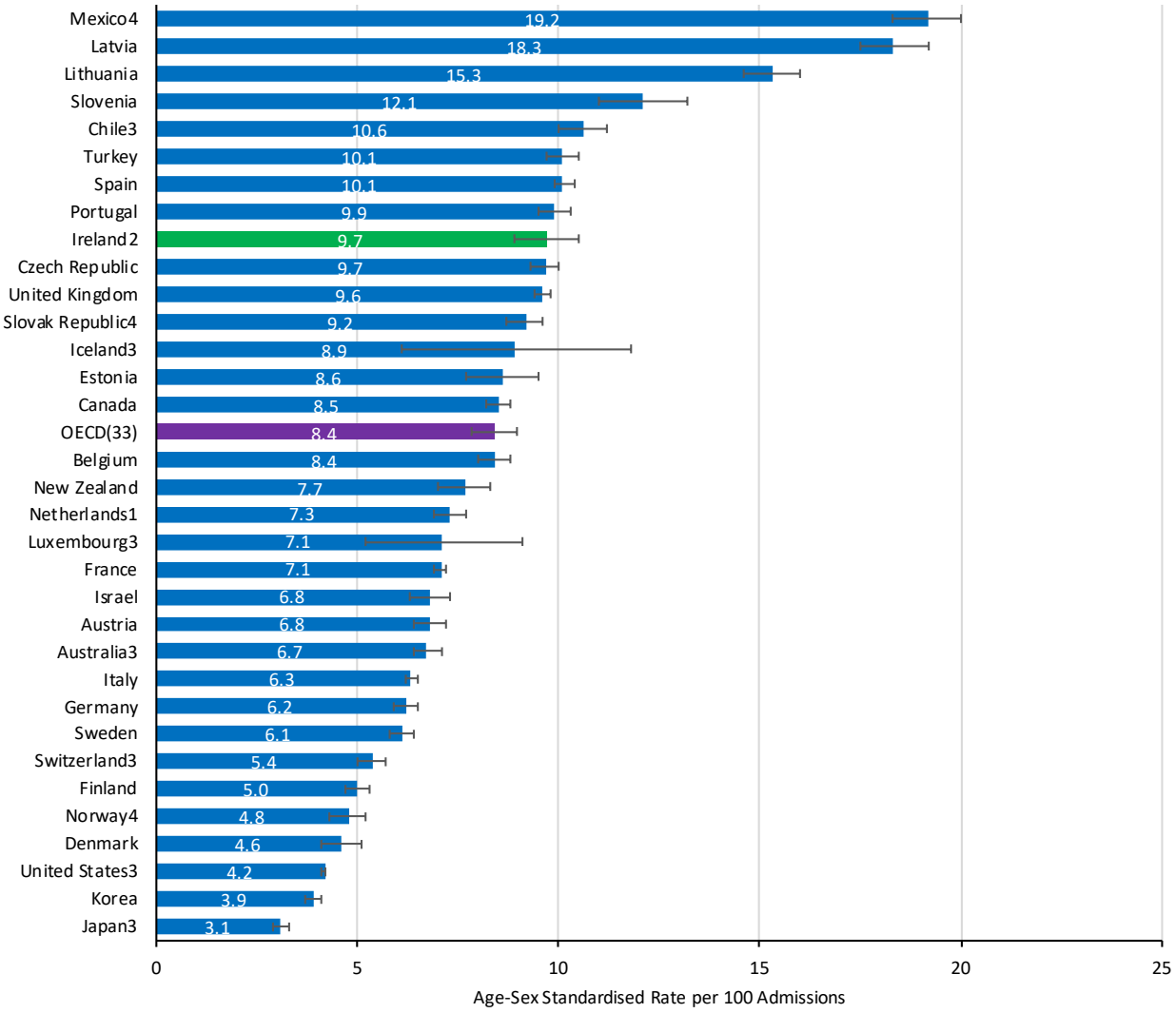
Figure 52: Age-sex standardised in-hospital mortality rates within 30 days of admission for ischaemic stroke, 2009 – 2018



Source: Hospital In-Patient Enquiry

Note: See appendix for detailed indicator definitions and methodology.

Figure 53: Age-sex standardised in-hospital mortality rates within 30 days of admission for ischaemic stroke for selected OECD countries, 2015 (or nearest year)



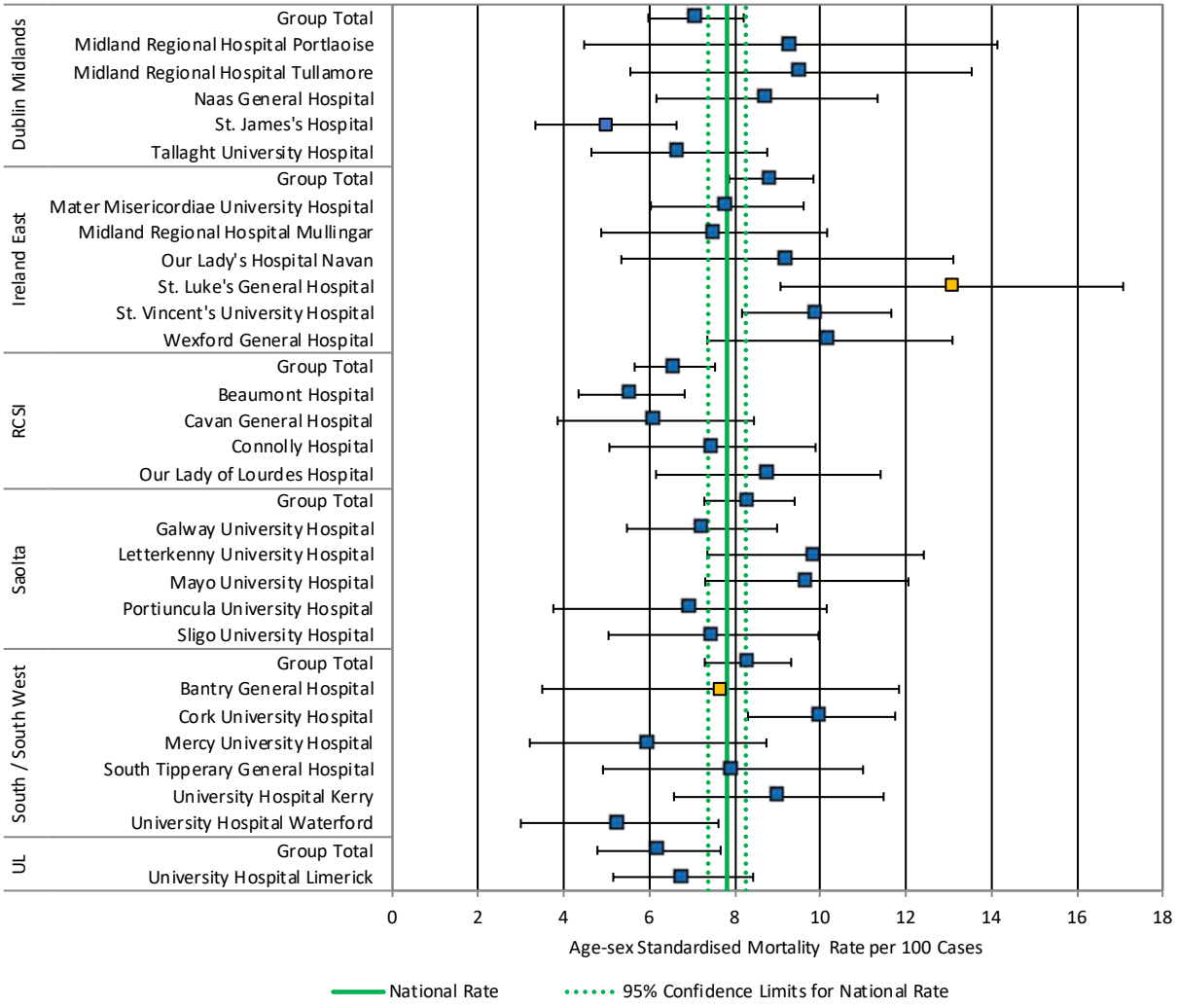
Source: OECD Health Statistics

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 ⊢⊣ .

[1]2012, [2]2013, [3]2014, [4] Deviation from OECD definition

See appendix for detailed indicator definitions and methodology.

Figure 54: Age-sex standardised in-hospital mortality rates within 30 days of admission for ischaemic stroke by hospital group and hospital, 2016 – 2018



Source: Hospital In-Patient Enquiry

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 less than 100 cases, although the data for these hospitals have been included in the calculation of the national 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. 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.

Age-sex standardised mortality rates that are statistically significantly higher at the 95% confidence level than the national rate are shown in amber. Rates for all other hospitals and hospital groups are below or within the expected range of the national rate.

See appendix for detailed indicator definitions and methodology.

Table 16: Age-sex standardised in-hospital mortality within 30 days of admission for Ischaemic Stroke by hospital group and hospital, 2016 – 2018

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	**2,123**	**7.09**	**5.98**	**8.21**
Tallaght University Hospital	632	6.71	4.65	8.76
Midland Regional Hospital Portlaoise	131	9.31	4.48	14.14
Midland Regional Hospital Tullamore	218	9.55	5.56	13.54
Naas General Hospital	480	8.76	6.17	11.34
St. James's Hospital	662	4.99	3.34	6.64
Ireland East	**3,077**	**8.85**	**7.87**	**9.84**
Mater Misericordiae University Hospital	862	7.82	6.04	9.61
Midland Regional Hospital Mullingar	327	7.52	4.88	10.16
Our Lady's Hospital Navan	196	9.23	5.35	13.11
St. Columcille's Loughlinstown	62	-	-	-
St. Luke's General Hospital	309	13.08	9.07	17.08
St. Michael's Hospital	29	-	-	-
St. Vincent's University Hospital	915	9.91	8.17	11.66
Wexford General Hospital	377	10.22	7.36	13.09
RCSI Hospitals	**2,742**	**6.60**	**5.66**	**7.54**
Beaumont Hospital	1,438	5.59	4.35	6.83
Cavan General Hospital	389	6.15	3.86	8.45
Connolly Hospital	431	7.48	5.07	9.89
Our Lady of Lourdes Hospital	484	8.79	6.16	11.41
Saolta	**2,365**	**8.35**	**7.29**	**9.40**
Galway University Hospitals	761	7.23	5.48	8.99
Letterkenny University Hospital	483	9.89	7.36	12.42
Mayo University Hospital	485	9.69	7.31	12.06
Portiuncula University Hospital	191	6.95	3.76	10.15
Roscommon University Hospital	18	-	-	-
Sligo University Hospital	427	7.50	5.05	9.96
South / South West	**2,765**	**8.31**	**7.30**	**9.32**
Bantry General Hospital	180	7.67	3.50	11.84
Cork University Hospital	1,202	10.03	8.31	11.75
University Hospital Kerry	446	9.03	6.58	11.48
Mallow General Hospital	33	-	-	-
Mercy University Hospital	269	5.98	3.21	8.74
South Tipperary General Hospital	294	7.96	4.92	11
University Hospital Waterford	341	5.31	3.00	7.62
UL Hospitals	**1,074**	**6.23**	**4.79**	**7.67**
University Hospital Limerick	926	6.80	5.16	8.43
Ennis Hospital	76	-	-	-
Nenagh Hospital	37	-	-	-
St. John's Hospital	35	-	-	-
Total for All Hospitals	**14,146**	**7.82**	**7.38**	**8.26**

Source: Hospital In-Patient Enquiry
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 less than 100 cases, although the data for these hospitals have been included in the calculation of the national 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. See appendix for detailed indicator definitions and methodology.

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. These issues notwithstanding, based on evidence which demonstrates better outcomes associated with timely surgery, the HSE has a target which states that 95% of emergency hip fracture surgeries should be carried out within 48 hours (2 days) of the patient's admission.

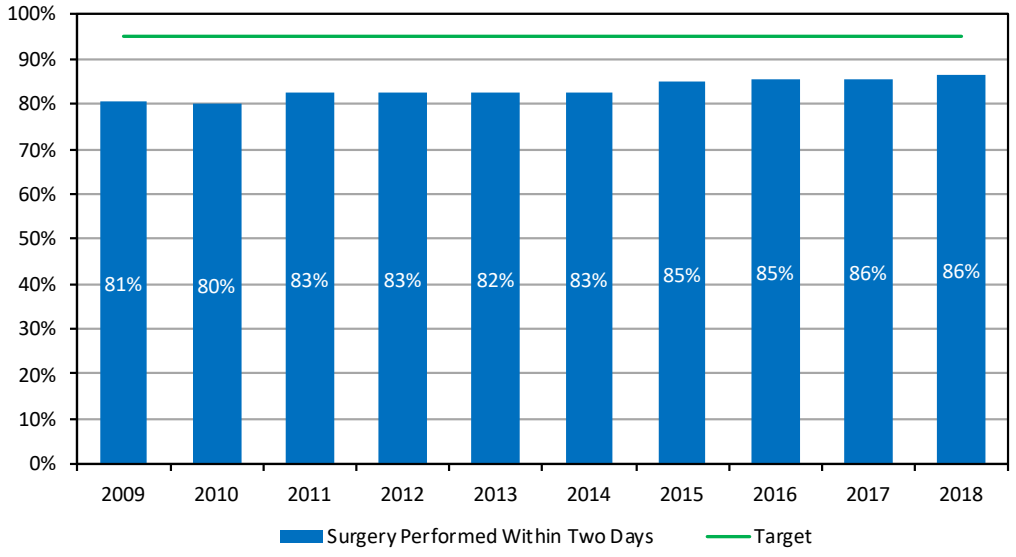
Rationale for the inclusion of indicator

Hip fracture, which is associated with increasing age, can lead to a significant risk of serious illness and sometimes death [52, 53]. 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) [54].

Commentary

- The proportion of patients aged 65 years and older with a hip fracture undergoing surgery within two days of admission increased over the ten year period from 2009 to 2018, with 86% of cases in 2017 and in 2018 undergoing surgery within two days compared to 81% in 2009.
- In 2015 (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 82% - slightly above the OECD average of 80%.
- During the three-year period 2016-2018 there was a variation between hospitals in the proportion of hip fracture cases undergoing surgery within two days. Hospital rates varied from 76% to 97% of surgeries occurring within the two-day target.

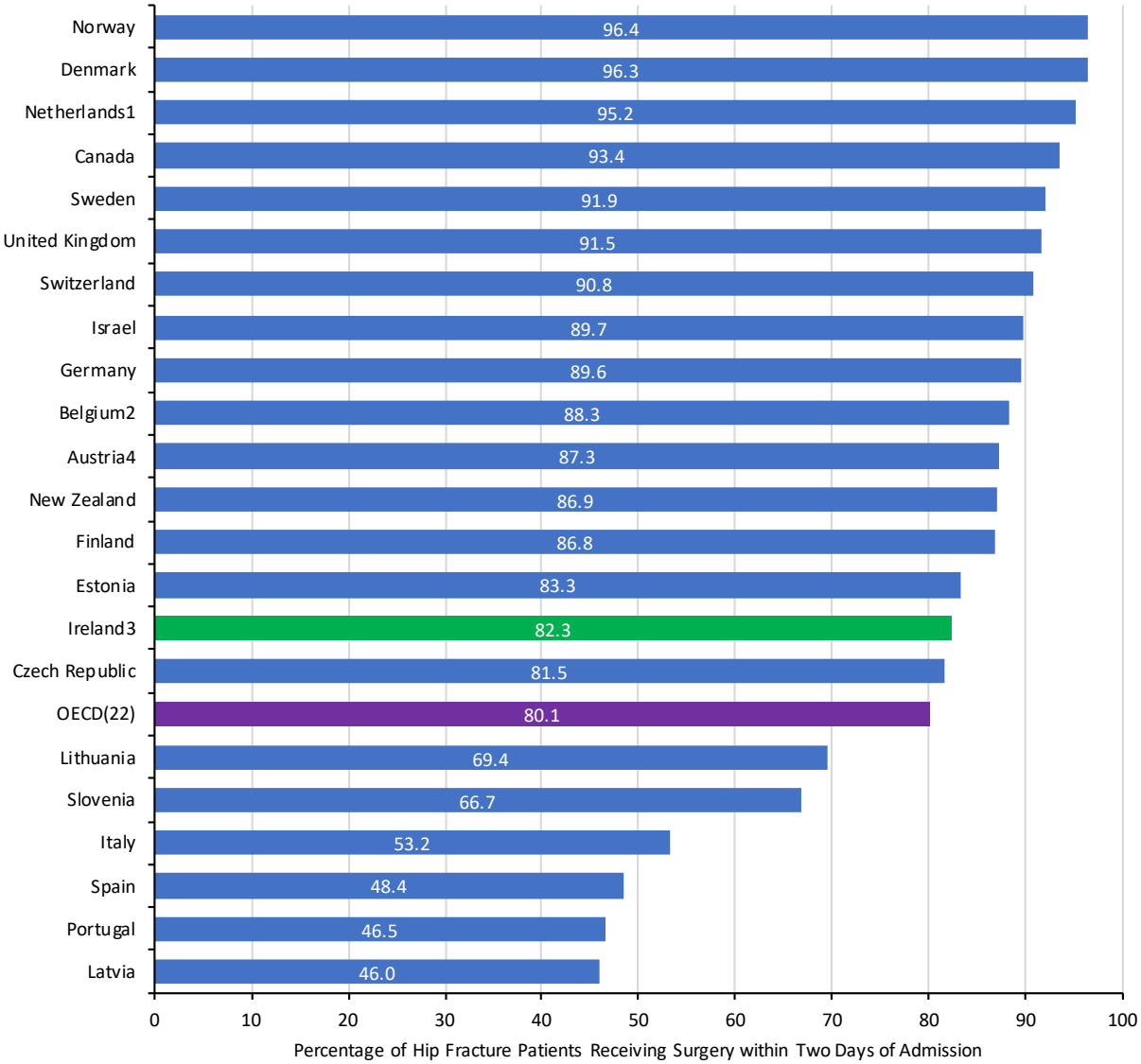
Figure 55: In-hospital waiting time for hip fracture surgery - proportion of cases undergoing surgery within 2 days of admission, 2009 – 2018



Source: Hospital In-Patient Enquiry

Note: See appendix for detailed indicator definitions and methodology.

Figure 56: In-hospital waiting time for hip fracture surgery - proportion of cases undergoing surgery within two days of admission for selected OECD countries, 2015 or latest year



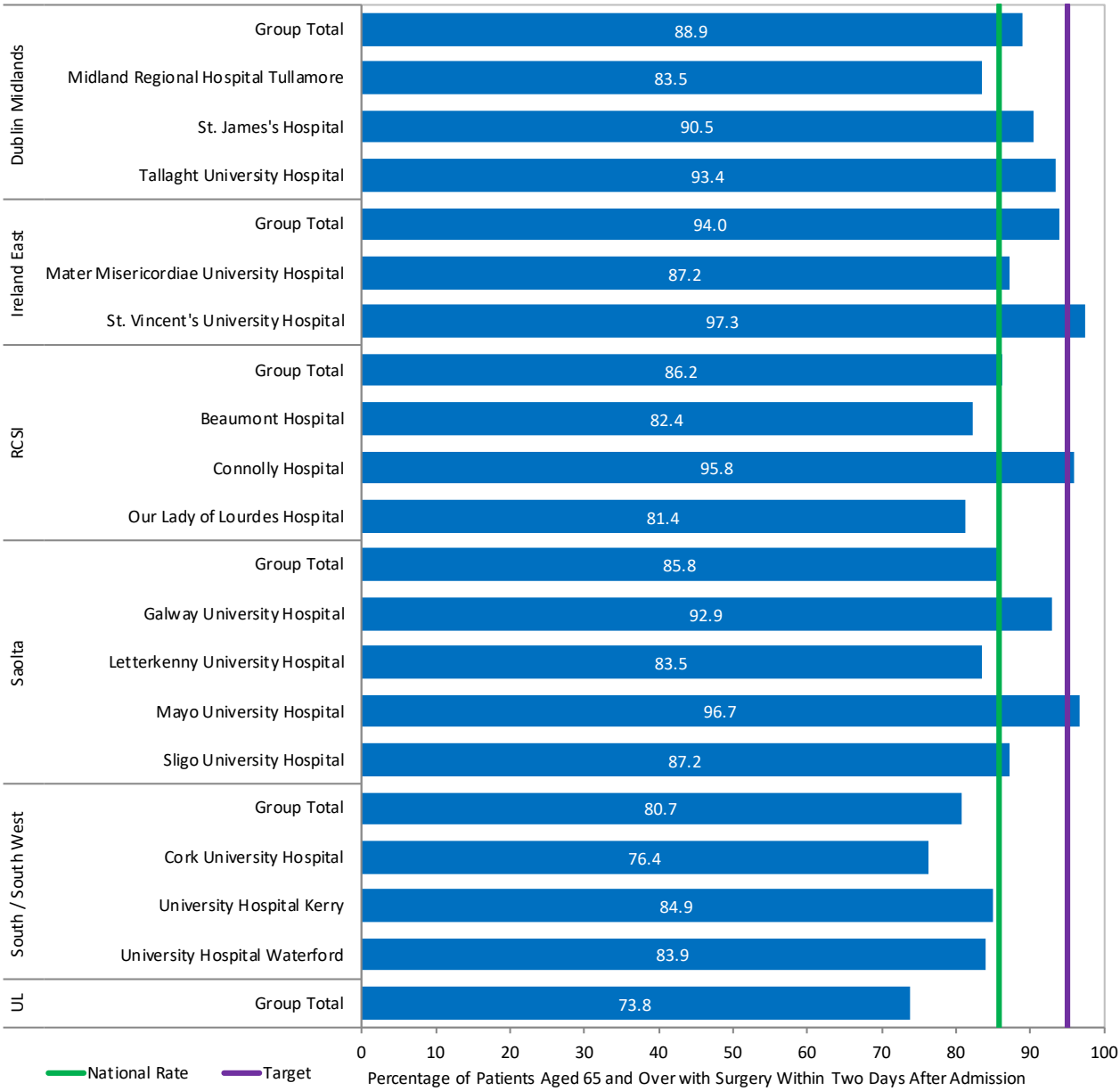
Source: OECD Health Statistics

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.

[1]2011, [2]2013, [3]2014, [4]Deviation from OECD definition

See appendix for detailed indicator definitions and methodology.

Figure 57: In-hospital waiting time for hip fracture surgery - proportion of cases undergoing surgery within 2 days of admission by hospital group and hospital, 2016 – 2018



Source: Hospital In-patient Enquiry (HIPE)

Note: See appendix for detailed indicator definitions and methodology.

Table 17: In-hospital Waiting Time for Hip Fracture Surgery - Proportion of Cases with Surgery within 2 Days of Admission, 2016 – 2018

Hospital Group	Number of Hip Fracture Admissions	Percentage with Surgery within 2 Days
Ireland East	**1,287**	**94.0**
Mater Misericordiae University Hospital	422	87.2
St. Vincent's University Hospital	865	97.3
Dublin Midlands	**1,448**	**88.9**
Midland Regional Hospital Tullamore	538	83.5
St. James's Hospital	411	90.5
Tallaght University Hospital	499	93.4
RCSI Hospitals	**1,597**	**86.2**
Beaumont Hospital	516	82.4
Connolly Hospital	502	95.8
Our Lady of Lourdes Hospital	579	81.4
UL Hospitals	**819**	**73.8**
University Hospital Limerick	-	-
South / South West	**2,642**	**80.7**
Cork University Hospital	1,167	76.4
University Hospital Kerry	371	84.9
University Hospital Waterford	1,104	83.9
Saolta	**1,612**	**90.4**
Galway University Hospital	578	92.9
Letterkenny University Hospital	363	83.5
Mayo University Hospital	336	96.7
Sligo University Hospital	335	87.2
Total for All Hospitals	**9,405**	**85.8**

Source: Hospital In-patient Enquiry (HIPE)

Note: Due to the low number of cases for hospitals, data in the above table has been suppressed in a number of cells for data protection purposes.

Caesarean section rates

Definition
The rate of caesarean section deliveries per 100 live births.

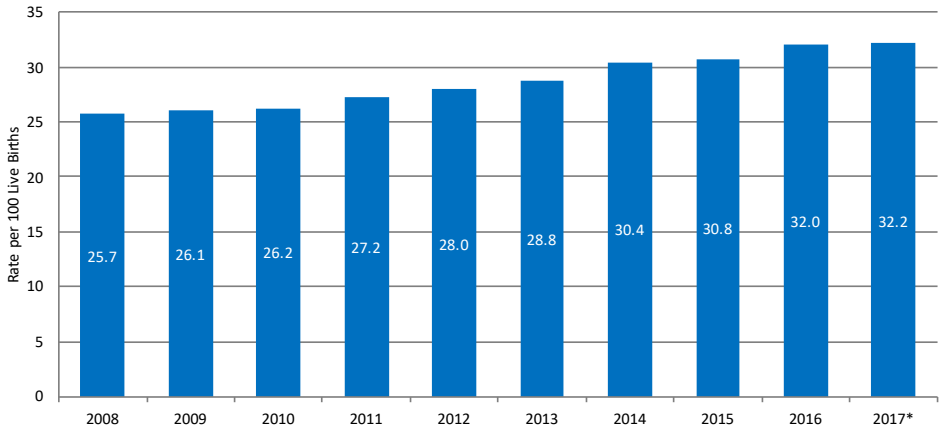
Description
Rates of caesarean delivery as a percentage of all live births have increased in almost all OECD countries in recent decades with the average rate across countries going up from 20% in 2000 to 28% in 2015, although the growth rate in many countries has slowed down since 2005. There are many 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 [56].

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 [55].

Commentary
- The national rates of caesarean section per 100 live births increased between the years 2007 and 2016.
- In 2016 the caesarean section rate for Ireland was 31.4 per 100 live births, which was above the OECD rate of 27.7.
- There was some variation observed in the rates of caesarean section per 100 live births in 2016 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 National Women and Infants' Health Programme recommends that hospitals examine their C-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 C-section rate should be considered along with appropriate outcome measures.

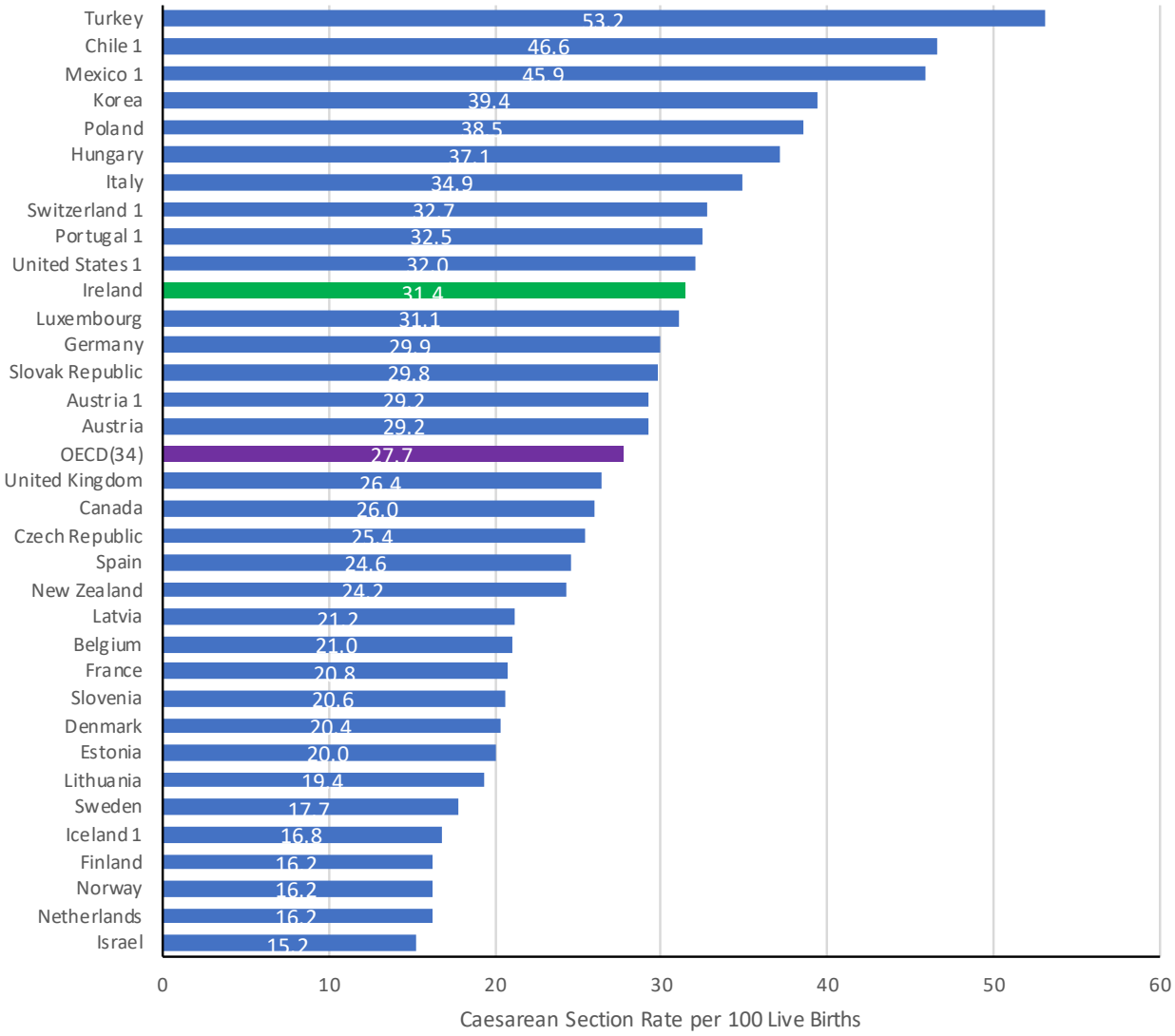
Figure 58: Caesarean section rates per 100 live births, 2008-2017



Source: National Perinatal Reporting System

Notes:
(i) The National Perinatal Reporting System (NPRS) 2017 data are provisional only at time of publication due to issues with the introduction of a new electronic health record system. These data are subject to change.
(ii) Based on Live births for total maternities.
(iii) Percentages are subject to rounding.
(iv) In accordance with the WHO guidelines, only births weighing 500 grams or more are included in any analysis of NPRS data.
(v) Data refer to the rate of caesarean sections per 100 live births (weight ≥500g) in public hospitals only and were provided by the Healthcare Pricing Office [March 2018]. See appendix for detailed indicator definitions and methodology.

Figure 59: Casarean section rates per 100 live births for selected OECD countries, 2016 or nearest year



Source: OECD Health Statistics

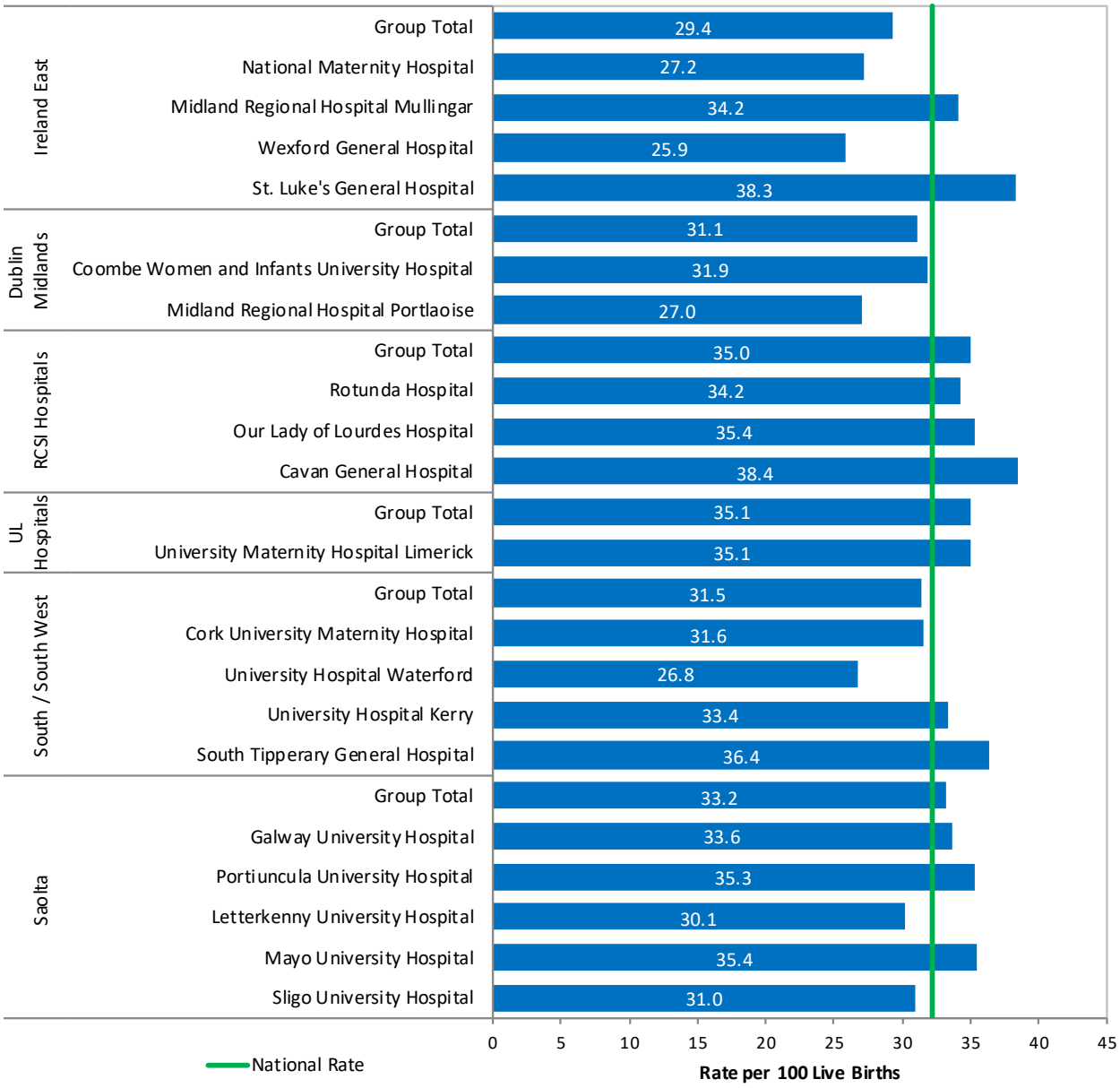
Notes:
[1] Data refer to inpatient cases only

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.

Data for Ireland refer to the rate per 100 live births (including those <500g) in 2015 (excluding private hospitals). This data is sourced from live births data at the Central Statistics Office (CSO) and hence the rate differs from that reported in Figure 56 – for which data was sourced from the Healthcare Pricing Office.

See appendix for detailed indicator definitions and methodology.

Figure 60: Caesarean section rates per 100 live births by hospital group and hospital, 2016



Source: National Perinatal Reporting System

Notes:

(i) The National Perinatal Reporting System (NPRS) 2017 data are provisional only at time of publication due to issues with the introduction of a new electronic health record system. These data are subject to change.
(ii) Based on Live births for total maternities.
(iii) Percentages are subject to rounding.
(iv) In accordance with the WHO guidelines, only births weighing 500 grams or more are included in any analysis of NPRS data.
(v) Data refer to the rate of caesarean sections per 100 live births (weight ≥500g) in public hospitals only and were provided by the Healthcare Pricing Office [March 2018]. See appendix for detailed indicator definitions and methodology.

See appendix for detailed indicator definitions and methodology.

Table 18: Caesarian Section Rates per 100 live births by hospital group and hospital, 2017

Hospital Group	Number of Live Births	Rate of Caesarean Sections per 100 Live Births, 2017
Ireland East	**13,785**	**29.4**
National Maternity Hospital	8,401	27.2
Midland Regional Hospital Mullingar	2,070	34.2
Wexford General Hospital	1,725	25.9
St. Luke's General Hospital	1,589	38.3
Dublin Midlands	**9,460**	**31.1**
Coombe Hospital	7,950	31.9
Midlands Regional Hospital Portlaoise	1,510	27.0
RCSI Hospitals	**12,771**	**35.0**
Rotunda Hospital	8,184	34.2
Our Lady of Lourdes Hospital	3,015	35.4
Cavan General Hospital	1,572	38.4
UL Hospitals	**4,319**	**35.1**
University Maternity Hospital Limerick	4,319	35.1
South / South West	**11,313**	**31.5**
Cork University Maternity Hospital	7,200	31.6
University Hospital Waterford	1,795	26.8
University Hospital Kerry	1,349	33.4
South Tipperary General Hospital	969	36.4
Saolta	**8,876**	**33.2**
Galway University Hospital	2,789	33.6
Portiuncula University Hospital	1,634	35.3
Letterkenny University Hospital	1,649	30.1
Mayo University Hospital	1,516	35.4
Sligo University Hospital	1,288	31.0
National	**60,524**	**32.2**

Source: National Perinatal Reporting System

Notes;

(i) The National Perinatal Reporting System (NPRS) 2017 data are provisional only at time of publication due to issues with the introduction of a new electronic health record system. These data are subject to change.
(ii) Based on Live births for total maternities.
(iii) Percentages are subject to rounding.
(iv) In accordance with the WHO guidelines, only births weighing 500 grams or more are included in any analysis of NPRS data.

4

Domain 4: Supporting people to have positive experiences of healthcare

- Overall Rating of Patient Experience 124
- Communication in the Emergency Department 125
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- Emotional Support Provided on the Ward 127
- Patient Involvement in Decision Making Regarding Care 128
- Communication Regarding Continuing Medicines at Patient Discharge 129
- Dignity and Respect while in Hospital 130

National Patient Experience Survey

Description

There is evidence confirming links between patient experience and clinical safety and effectiveness (Doyle, et al., 2013) (Issac, et al., 2010) (Lawton, et al., 2015). 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 Patient Experience Survey (NPES) 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 a broader programme to help improve the quality and safety of healthcare services in Ireland. All adult patients (16 years old or older)[1] discharged during May 2018 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 2018 survey.

The response rate for the Irish National Patient Experience Survey was over 50%. This is an exceptional response rate compared to similar surveys in other countries. This indicates that Irish patients are interested in sharing their views on their care.

National, hospital group and hospital reports were published on www.patientexperience.ie in November 2018. These identify areas of good experience and highlight areas for improvement at national, hospital group and hospital level. In February 2019, a technical report, which describes the analysis methodologies used was also published and is available on https://www.patientexperience.ie/about-the-survey/survey-model-methodology/.

The HSE has also published their response and quality improvements plans in response to the findings of the NPE Survey, which are available on https://www.hse.ie/eng/services/publications/hospitals/national-patient-experience-survey-2018.pdf.

Rationale for the Inclusion of Indicators

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

1. Patient-centeredness.
2. International comparability.
3. Importance of measuring information unique to the NPES 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.

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 who used identical questions are summarised in table 19. 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. As such, the results may not be affected simply by the quality or experience of care. Caution is advised when comparing this information.

National Patient Experience Commentary

- Of those who were eligible to participate in the survey, 50% responded (13,404 patient respondents). This is a high response rate relative to other patient experience surveys conducted abroad. In 2017, the response rate in Ireland was 51%.

[1] 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.

- 84% of respondents indicated a good or very good experience of their hospital stay overall. This is comparable to other patient experience surveys internationally. This is the same as was observed in the 2017 study.
- Ireland's patient experience survey results compared favourably with international counterparts regarding dignity and respect shown to patients in hospital as well as the amount of patient involvement in decision making occurred.
- Other countries scored higher than Ireland on questions regarding the level of understanding patients had about their medicines at discharge and regarding the amount of emotional support available to patients while they were on the ward.
- In the 2018 NPES, it appears that patients discharged from smaller hospitals and specialty hospitals reported higher ratings for their care experience than those discharged from larger hospitals.
- For the 2018 NPES results, on the whole there was little variation between Hospital Group averages for each of the indicators.
- It should be noted that Ireland's NPES has only collected data twice thus far and hence caution should be taken when comparing these results.

Table 19: Summary of Patient Experience Survey Measures as Reported Internationally

	Ireland (2018)	England (2016)	Scotland (2016)	Wales (2015)	Northern Ireland (2017)	New Zealand (2017)
Communication in the Emergency Department	84%	76%[1]	71%	-	-	-
Patient Involvement in Decision Making Regarding Care	92%	90%	64%	-	93%	70%
Emotional Support Provided on the Ward	54%	-	-	-	-	-
Pain Control on the Ward	82%	93%	91%[4]	97%[3]	96%	83%
Communication Regarding Continuing Medicines at Patient Discharge	73%	91%	95%[2,4]	-	94%	-
Dignity and Respect while in Hospital	97%	97%	-	99%	98%	87%
Overall Rating of Experience	84%	84%	90%	92%	92%	-
Response Rate	**50%**	**41%**	**40%**	*	**37%**	**25%**

Sources

England's information is from the Adult Inpatient Survey 2017 conducted by Care Quality Commission. More information is available at: https://www.cqc.org.uk/publications/surveys/adult-inpatient-survey-2017

Scotland's information is from the 2018 Inpatient Experience Survey conducted by the Scottish Care Experience Programme. More information is available at http://www.gov.scot/Topics/Statistics/Browse/Health/InpatientSurvey/Inpatient2018

Wales' information is from the All Wales Patient Experience Audit Summary Report 2015 conducted by the NHS in Wales. More information is available at: https://gov.wales/docs/phhs/publications/160615patient-experienceen.pdf

Northern Ireland's information is from the Inpatient Patient Experience Survey 2017 conducted by the Information Analysis Directorate of the Northern Irish Department of Health. More information is available at: https://www.health-ni.gov.uk/publications/inpatient-patient-experience-survey-2017

New Zealand's information is from the Adult Experience Survey conducted by the Health Quality & Safety Commission New Zealand. More information is available at: https://www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/patient-experience/adult-inpatient-experience/

Notes

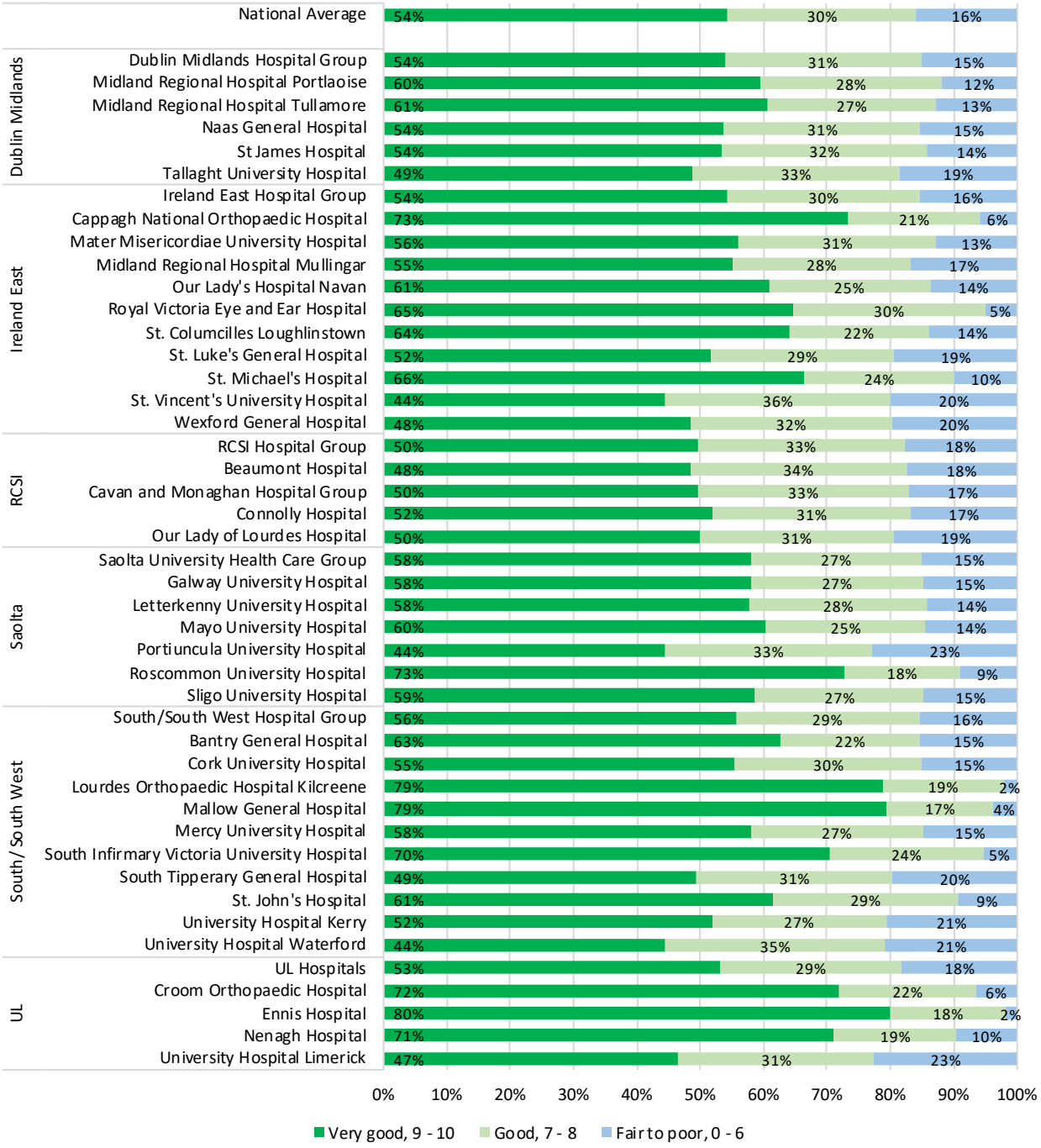
[1] In the English survey, respondents were asked "While you were in the A&E Department, how much information about your condition or treatment was given to you?"
[2] In the Scottish survey, respondents were asked to respond to the statement "I understood what my medicines were for"
[3] In the Welsh survey, respondents were asked "Throughout your stay/attendance, how often did you feel that you were, as far as possible, kept free from pain?"
[4] These results were from surveys conducted in 2016

Overall Experience Rating

Definition

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

Figure 61: Patient Reported Overall Rating of Hospital Experience by Hospital and Hospital Group, 2018



Note: If a hospital has fewer than 30 responses, its results will not be published to protect respondent anonymity and ensure that only reliable results are reported.

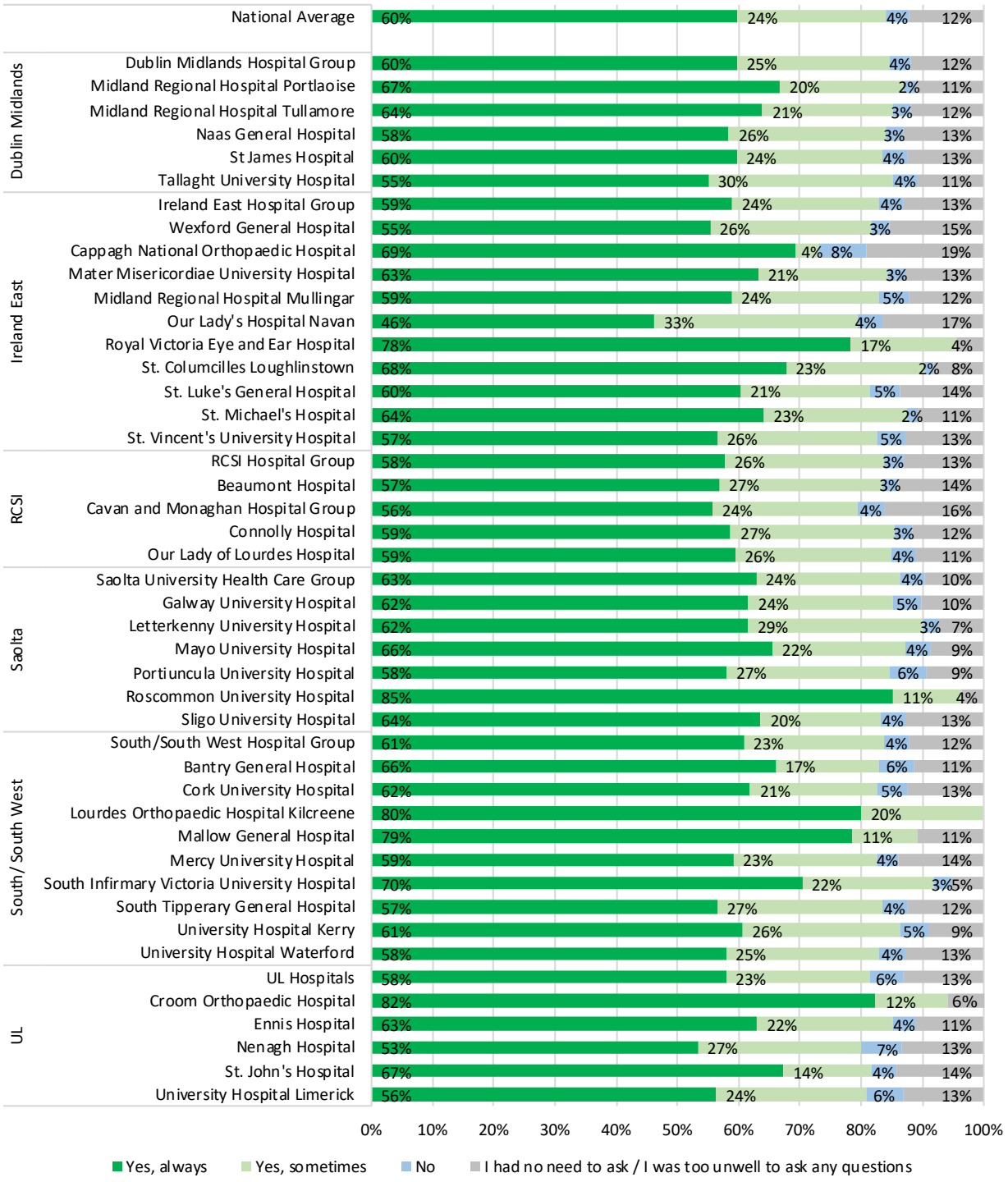
Source: National Patient Experience Survey, 2018

Admission to Hospital: Communication in the Emergency Department

Definition

The percentage responses by hospitals, hospital groups and national to the question 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 62: Communication in the Emergency Department: Patient Reported Responses by Hospital and Hospital Group, 2018



Note: If a hospital has fewer than 30 responses, its results will not be published to protect respondent anonymity and ensure that only reliable results are reported. Some hospitals who participated in the National Patient Experience Survey do not have an Emergency Department and hence do not have results for this indicator.

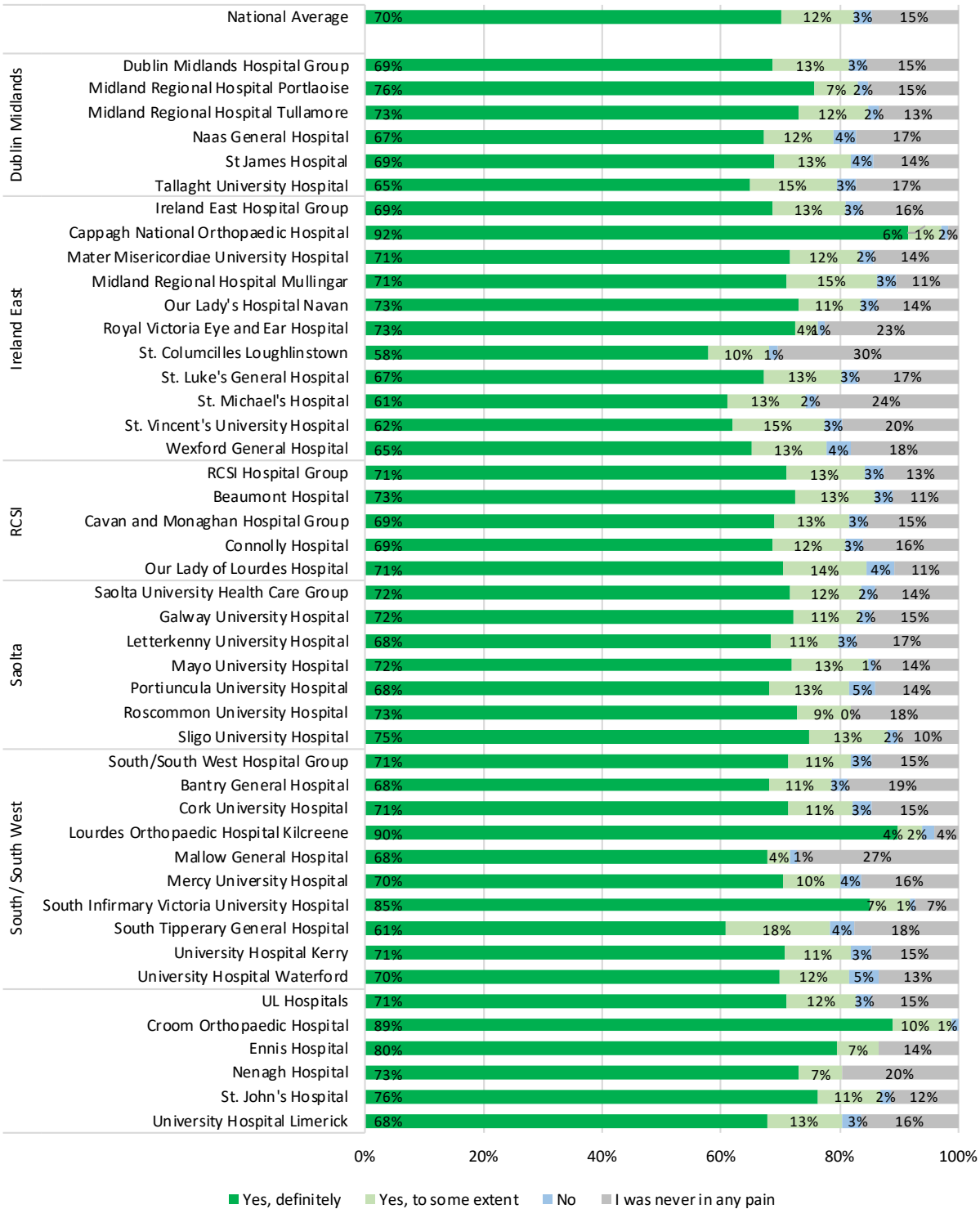
Source: National Patient Experience Survey, 2018

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 63: Pain Control on the Ward: Patient Reported Responses by Hospital and Hospital Group, 2018



Note: If a hospital has fewer than 30 responses, its results will not be published to protect respondent anonymity and ensure that only reliable results are reported.

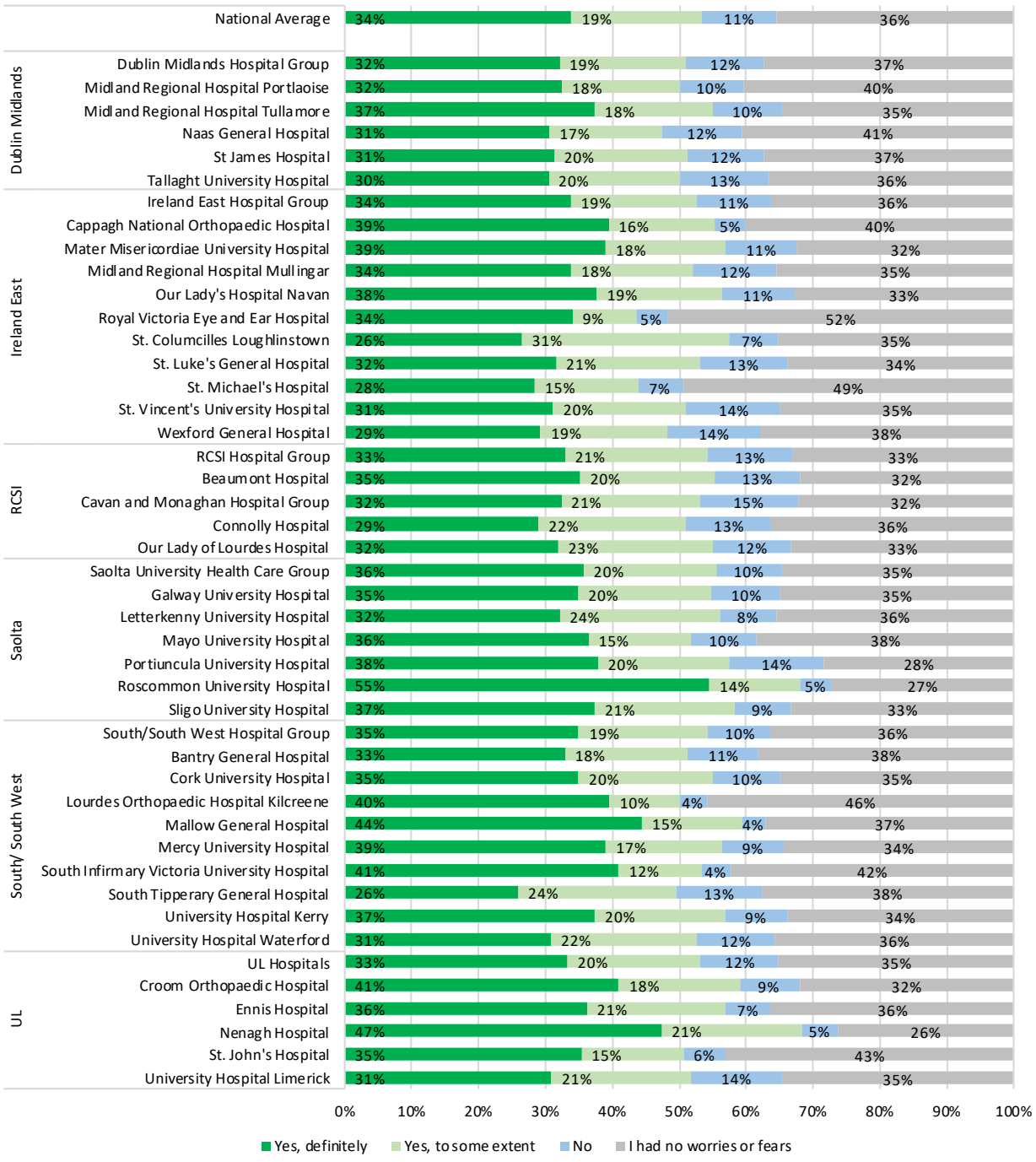
Source: National Patient Experience Survey, 2018

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 64: Emotional Support the Ward: Patient Reported Responses by Hospital and Hospital Group, 2018



Note: If a hospital has fewer than 30 responses, its results will not be published to protect respondent anonymity and ensure that only reliable results are reported.

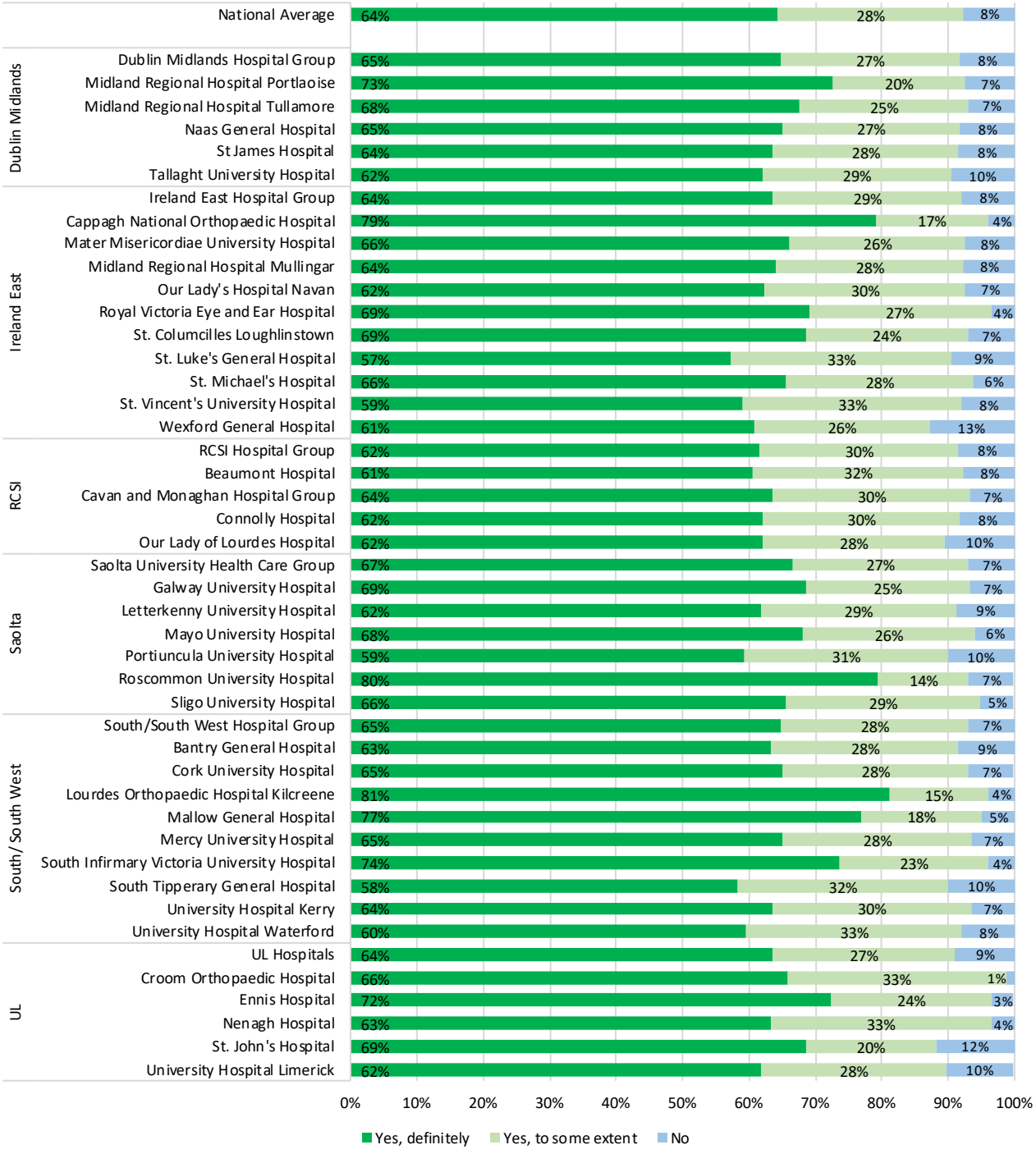
Source: National Patient Experience Survey, 2018

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 65: Patient Involvement in Decision Making Regarding Care: Patient Reported Responses by Hospital and Hospital Group, 2018



Note: If a hospital has fewer than 30 responses, its results will not be published to protect respondent anonymity and ensure that only reliable results are reported.

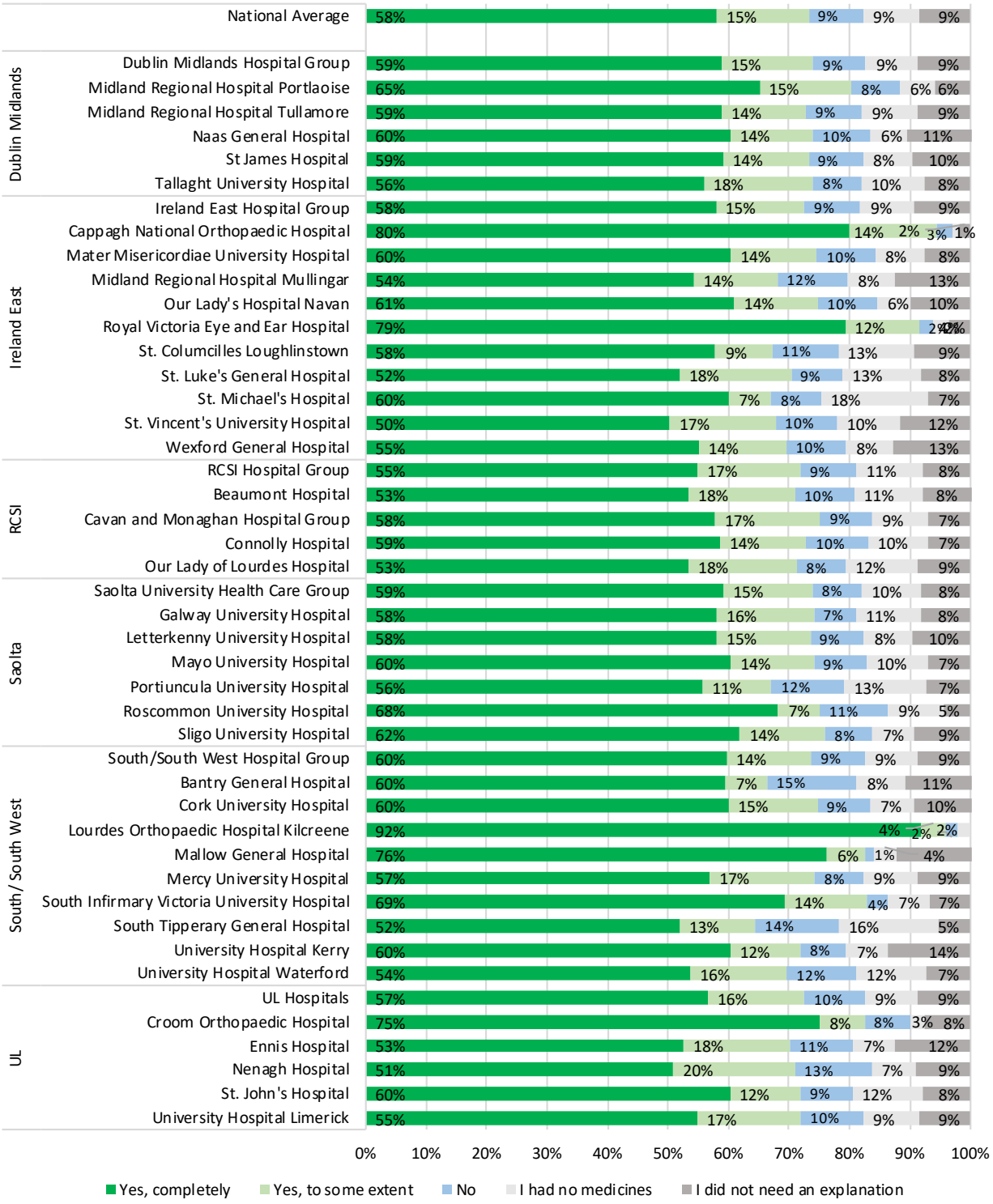
Source: National Patient Experience Survey, 2018

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 66: Communication Regarding Continuing Medicines at Patient Discharge: Patient Reported Responses by Hospital and Hospital Group, 2018



Note: If a hospital has fewer than 30 responses, its results will not be published to protect respondent anonymity and ensure that only reliable results are reported.

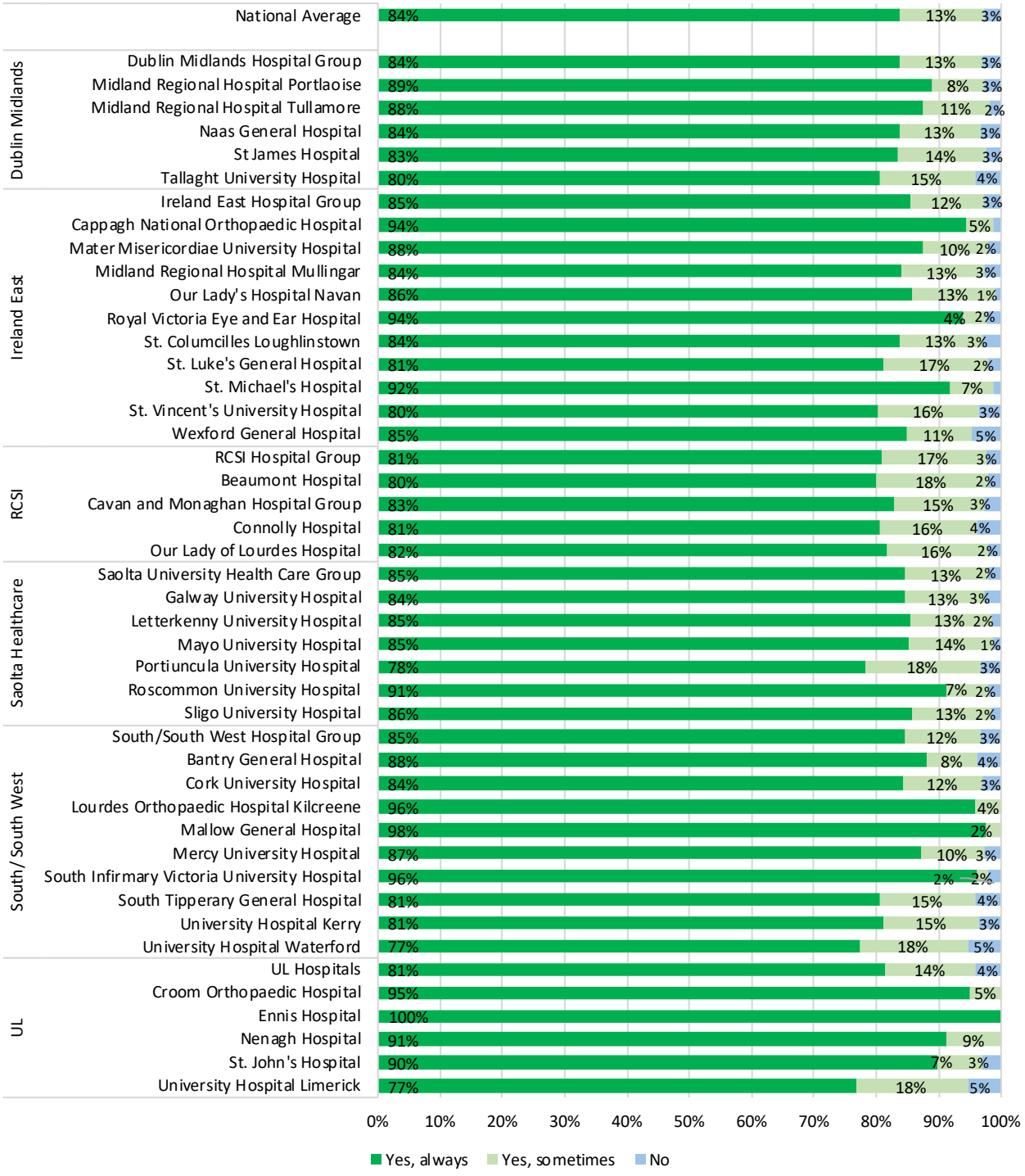
Source: National Patient Experience Survey, 2018

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 67: Dignity and Respect while in Hospital: Patient Reported Responses by Hospital and Hospital Group, 2018



Note: If a hospital has fewer than 30 responses, its results will not be published to protect respondent anonymity and ensure that only reliable results are reported.

Source: National Patient Experience Survey, 2018

5

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

Healthcare associated infection rates:

- *Staphylococcal aureus* and Methicillin-resistant *Staphylococcal aureus* (MRSA) blood stream rates 133
- *Clostridium Difficile (C. difficile)* rates 135
- Carbapenemase-producing *Enterobacteriales* 136

Antibiotic consumption rates:

- Antibiotic consumption in the community 137
- Antibiotic consumption in public acute hospitals 138

Medication safety:

- Chronic benzodiazepine usage in the community in people aged 65 years and over 142

Overview of selected indicators

There are 4 indicators in this domain in the following 3 areas:
- Healthcare associated infections (HCAIs)
- Antibiotic consumption in the community
- Medication safety

Healthcare associated infections

Healthcare associated infections (HCAIs) are infections people contract while they are 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 blood infections. About one third of HCAIs can be prevented by good hand-hygiene and appropriate care when dealing with patients [59].

A number of National Clinical Guidelines are in place to support good practice including the National Clinical Effectiveness Committee (NCEC) Methicillin-resistant *Staphylococcus aureus* (MRSA) and *C. difficile* Guidelines [60, 61]. The number of patients who acquire HCAIs is recognised as a measure of the quality and safety of care provided and therefore rates of HCAIs are included in this report.

The indicators for healthcare associated infections are:
- *Staphylococcal aureus* and Methicillin resistant *Staphylococcal aureus* (MRSA) blood stream rates
- *Clostridium difficile (C. difficile)*
- Carbapenemase-producing *Enterobacteriales*

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

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 for 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.

The sheer volume of antimicrobials being used globally in humans, animals and in other situations has led to significant increases in rates of resistance against these medicines; 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 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 patients and animals that are expected to benefit from treatment.

In fulfillment of Ireland's commitment to the Global Action Plan, Ireland's National Action Plan on Antimicrobial Resistance (2017-2020), known as iNAP, was launched by both the Minister for Health and Minister for Agriculture Food and the Marine in October 2017. This was developed jointly in recognition of the requirement for a One Health approach to tackling AMR. iNAP provides a road map to target HCAIs and AMR across the human veterinary and environmental sectors.

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.

Staphylococcus aureus and Methicillin resistant *Staphylococcus aueus* (MRSA) blood steam infection rates

Definition

Rate of *Staphylococcus aureus (S. aureus)* and methicillin-resistant *S. aureus* (MRSA) blood stream infections in acute hospitals per 1,000 bed days used.

Description

MRSA is a type of *S. aureus* that has become resistant to meticillin as well as all other penicillins. This means that none of the penicillin class of antibiotics are useful to treat MRSA infections. MRSA are also often resistant to other classes of antibiotics also. This makes infection caused by MRSA more difficult to treat. Healthcare interventions like intravenous catheters increase the risk of developing *S. aureus* blood stream and many of these infections can be prevented. Acquisition of MRSA is associated with healthcare. In some people who acquire MRSA the bacteria can cause serious infections, such as septicaemia (also known as bloodstream infection). For these reasons MRSA blood stream infection rate are sometimes used as an quality indicator for healthcare associated infection.

However, another measure of quality has also been utilised. This is the rate of hospital acquired bloodstream *S. aureus* infections. This measure should be used in conjunction with the Rate of *Staphylococcus aureus* (*S. aureus*) and methicillin resistant *S. aureus* (MRSA) bloodstream infection in acute hospitals per 1,000 bed days used for the purposes of quality improvement.

In recent years MRSA blood stream infection has declined as a proportion of total *S. aureus* blood stream infections. The rate of MRSA blood stream infection has also declined in absolute terms. There is currently no consensus on the specific causes of this decline. The rate of MSSA blood stream infection has increased so that the total rate of *S. aureus* blood stream infection is relatively stable.

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 quarter.

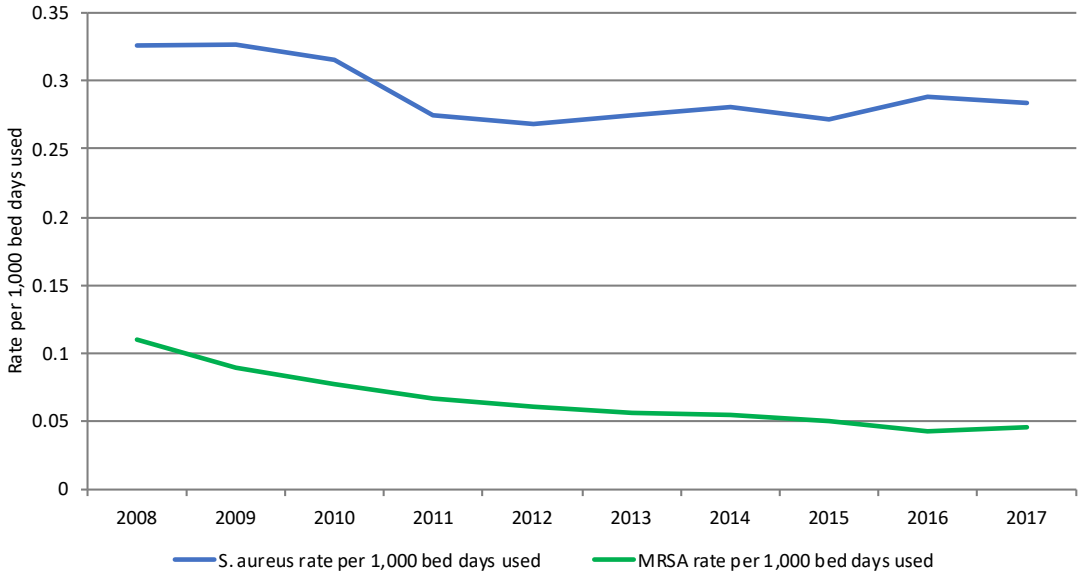
Rationale for the inclusion of indicator

Most people who carry MRSA on their bodies or in their noses do not suffer any ill effects and this is known as "colonisation". However, MRSA 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.

Commentary

- Figure 68 shows national MRSA bloodstream infection rates per 1,000 bed days used between 2008 and 2017. In 2017, there was a *S. aureus* rate of 0.28 per 1,000 bed days used and a MRSA rate of 0.05 per 1,000 bed days used. This rate has decreased annually over the last 10 years with a 82% reduction seen over the time period.
- Figure 69 shows Ireland and other European countries who are part of the European Antimicrobial Resistance Surveillance Network (EARS-Net). This Network collects and reports on the proportion of S. aureus bloodstream infections that are methicillin-resistant (MRSA) for the participating countries. Ireland reported a rate of 16.3 MRSA cases as a proportion of *S. aureus* cases.
- In 2017, in Ireland 15% of *S. aureus* bloodstream infections were methicillin resistant; this is as compared with 2008 when 38% of these infections were methicillin resistant. These improvements notwithstanding, in 2017 Ireland still ranked 19th out of 30 countries who participate in EARS-Net.

Figure 68: *Staphylococcus aureus* and MRSA bloodstream infection rates per 1,000 bed days used, 2008-2017

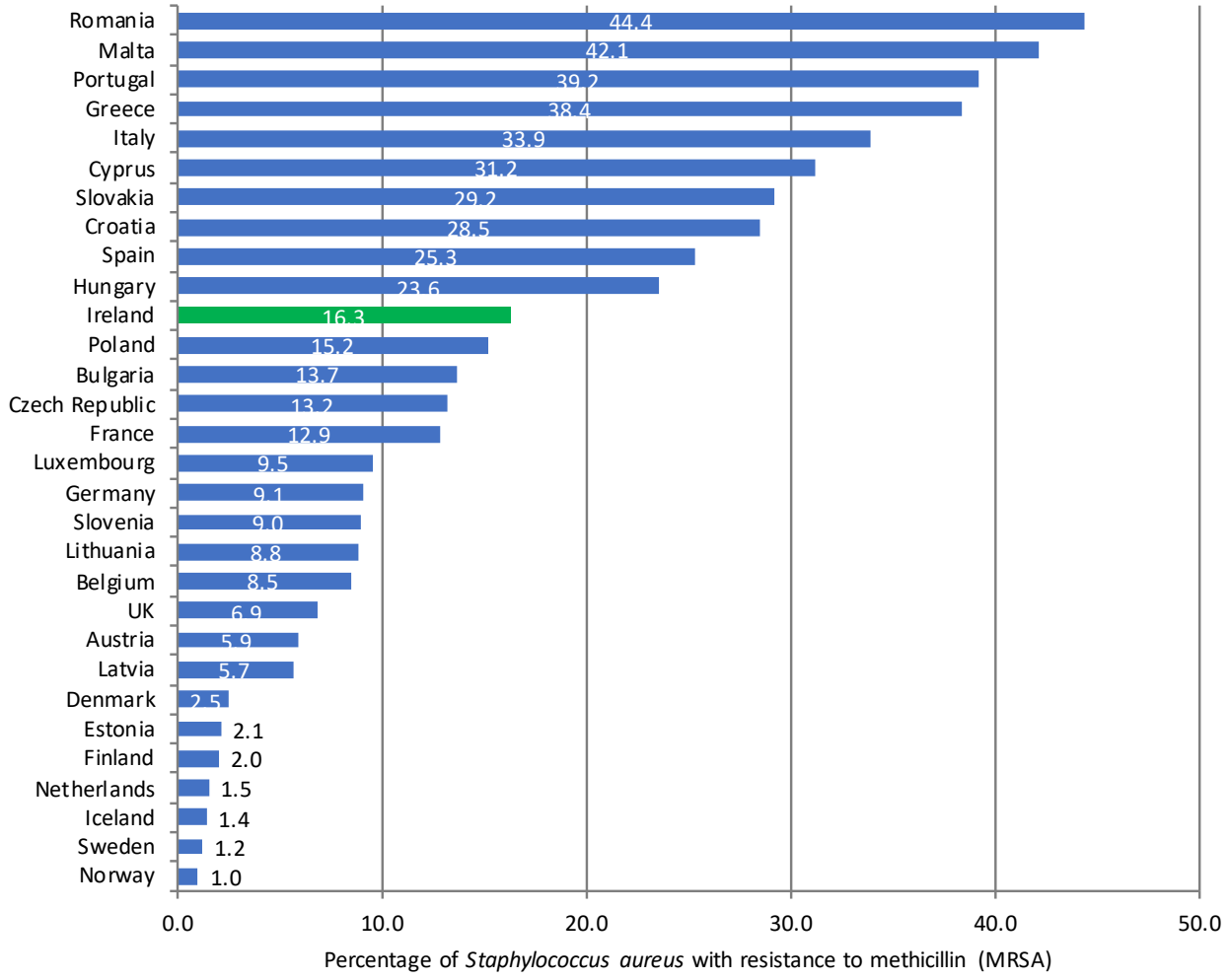


Source: Health Protection Surveillance Centre

Notes: Rates calculated for acute public hospitals only, as no demoninator is available for private hospitals.

See appendix for detailed indicator definitions and methodology.

Figure 69: MRSA cases as a proportion of *Staphylococcus aureus* cases, 2017



Source: EARS-Net

Note: See appendix for detailed indicator definitions and methodology.

Clostridium difficile (C. difficile) infection rates

Definition

Rate of new cases of *Clostridium difficile* infection (CDI) in acute hospitals per 10,000 bed days used.

Description

Clostridium 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 don't 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) 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).

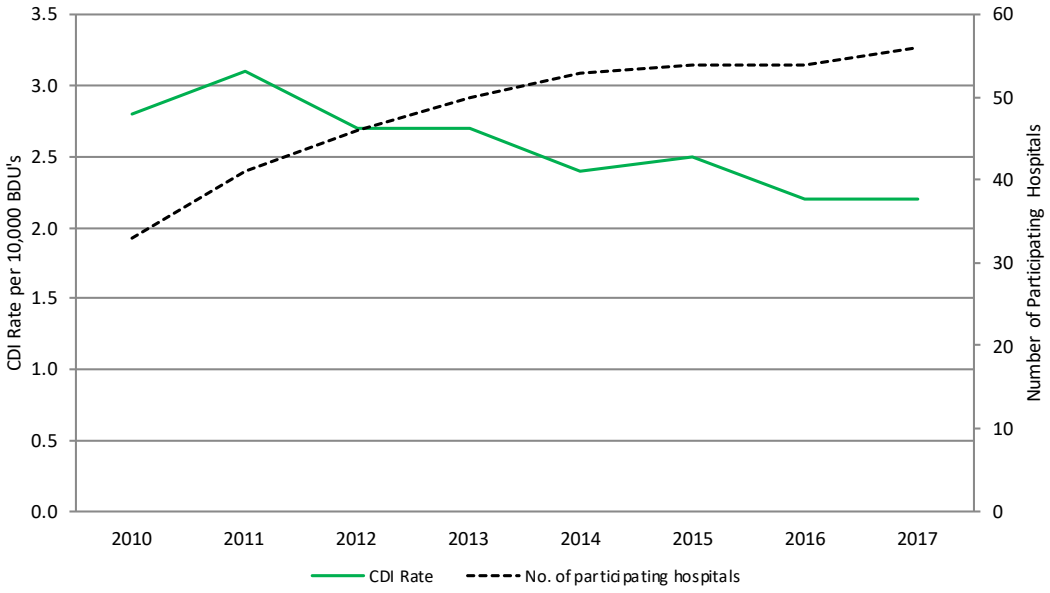
Rationale for the inclusion of indicator

CDI rates in hospitals are recognised and used internationally as one measure of the quality and safety of a healthcare service.

Commentary

- Figure 70 shows new hospital-acquired CDI cases per 10,000 bed days used, between 2010 and 2017 at a national level. The rate has decreased over the five years as a whole.
- Figure 70 also shows the number of hospitals participating in this reporting scheme. This has increased annually and, since 2012, there has been complete participation in CDI enhanced surveillance by all tertiary and general hospitals. There are now 54 hospitals now contribute this data.

Figure 70: New hospital-acquired *Clostridium difficile* infection cases per 10,000 bed days used, 2010 –2017



Source: Health Protection Surveillance Centre (HPSC)

Note: See appendix for detailed indicator definitions and methodology.

Carbapenem-producing *Enterobacteriales* (CPE)

Rationale for the inclusion of indicator

CPE has been identified throughout the world in recent years. Ireland has seen an increase in the number of cases year on year since it was first detected here in 2009. The number of cases almost doubled in 2016 and increased by a further third in 2017.

Description

Carbapenemase-producing *Enterobacteriales*, known as CPE (also referred to as carbapenem-resistant *Enterobacteriales* (CRE)) gram-negative bacteria that are carried in the bowel and are resistant to most, and sometimes all, available antibiotics. While often benign in the bowel, it can cause infections in other organ systems including blood stream infection in people who are vulnerable, such as the elderly and those with low immunity.

The spread of this superbug in hospitals can lead to the closure of beds, wards and units removing thereby, essential capacity to provide services, to admit patients from Emergency Departments and to address waiting lists effectively.

Public Health and microbiological advice indicates that the opportunity remains for effective interventions to be taken which can protect our patients, protect our hospital capacity from unplanned closures and ultimately lead to a halting or reduction in the spread of this superbug.

Surveillance of CPE in acute hospitals has increased in over the past year to 18 months, following the declaration of a National Public Health Emergency for CPE by the Minister for Health in October 2017. The Health Protection Surveillance Centre is now regularly collecting data from a number of sources and reporting on CPE monthly.

Commentary

As data collection has only been ongoing since October 2017, at this time, there is not sufficient information to include charts in this report.

In 2017, there were 433 patients newly diagnosed with CPE. In 2018, this number increased to 537 patients. In this time, the number of screening tests performed also increased substantially, from 9,821 in October 2017 to 24,463 in April 2019. By screening and diagnosing more patients, CPE patients can be managed more effectively in hospitals, limiting its impact on other patients.

Antibiotic consumption in the community

Definition

Community antibiotic consumption rates are measured in Defined Daily Dose (DDD) per 1,000 inhabitants per day from community consumption data.

DDD is defined as the assumed average maintenance dose per day for a drug used for its main indication in adults (62). Community antibiotic consumption data is obtained from the IMS Health (a pharmaceutical market research company) dataset which contains regional, monthly wholesaler to retail pharmacy sales data from over 95% of the wholesalers and manufacturers in Ireland [63].

Description

Ireland's National Action Plan on Antimicrobial Resistance 2017-2020 (iNAP) recognises the urgent and growing problem of antimicrobial resistance for human health worldwide. It aims to implement policies and actions to prevent, monitor and combat AMR across the health, agricultural and environmental sectors. 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.

Surveillance of antibiotic usage has been identified as a key component in Ireland's National Action Plan on Antimicrobial Resistance (2017–2020), known as iNAP. This plan was developed in conjunction with the Department of Agriculture, Food and the Marine in line with the One Health approach to antimicrobial resistance.

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.'

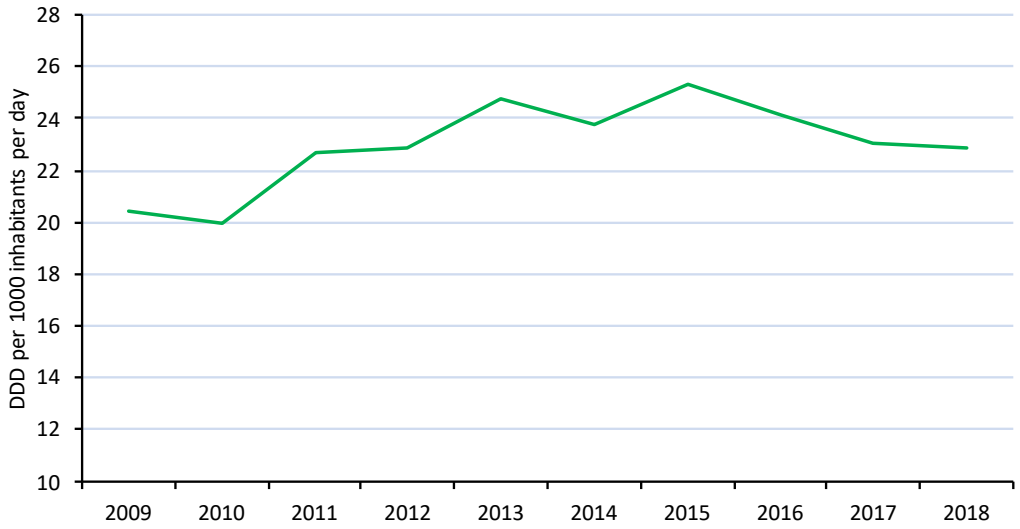
Rationale for the inclusion of indicator

Excessive prescription of antibiotics is connected to the development of antimicrobial resistance. Antimicrobial resistance leads to higher medical costs and prolonged hospital stays. The majority of human antibiotic consumption in Ireland takes place at community level, and therefore it is important to have a measure of this consumption.

Commentary

- The total volume of antibiotics consumed annually has increased over the last ten years, although a small decrease was seen in 2018 (22.9 DDD) compared with 2017 (23.1 DDD).
- In 2014, the overall community antibiotic consumption for Ireland was 23.0 DDD. Ireland ranked 9th highest in community antibiotic consumption in Europe.
- High antibiotic consumption does not automatically equate with inappropriate antibiotic use.
- In 2017, Ireland reported an antibiotic consumption rate of 22.9 DDD per 1000 inhabitants per day to the European Centre for Disease Control.

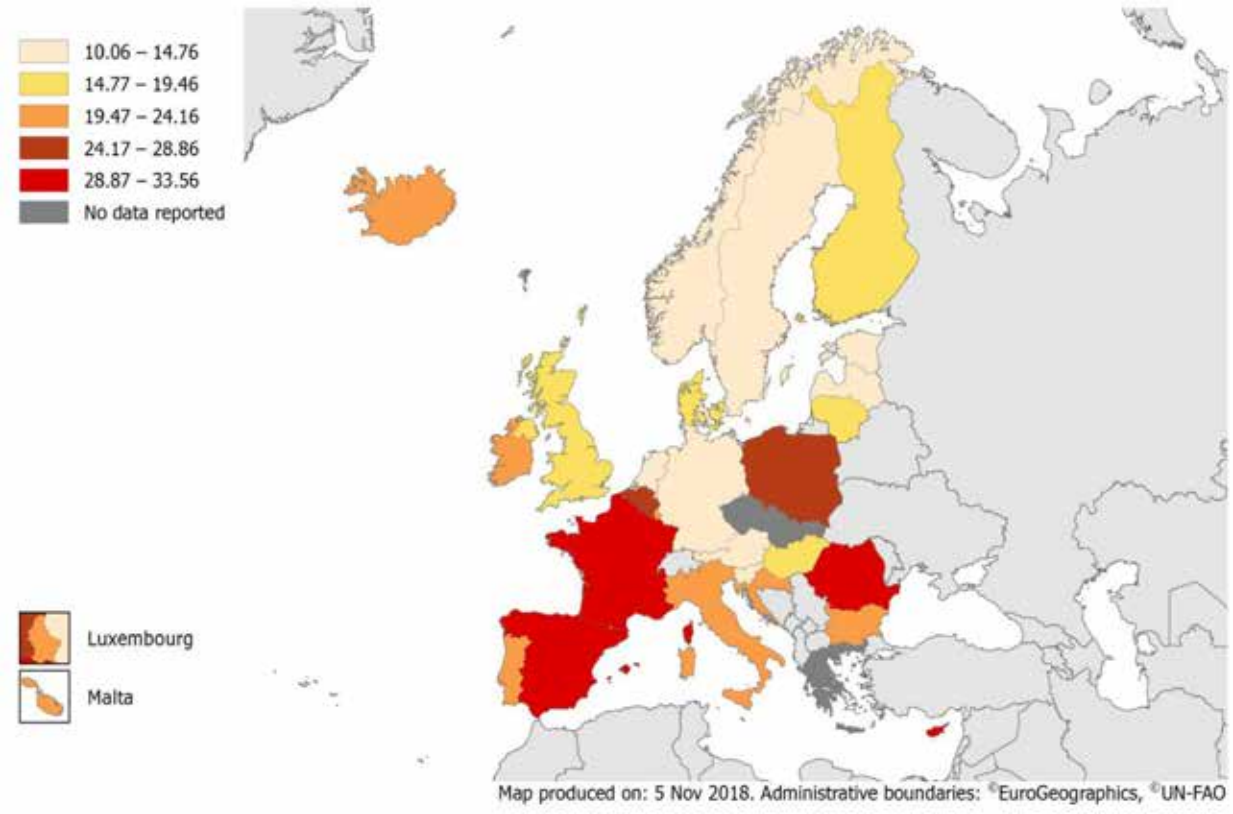
Figure 71: Total antibiotic use in the community in Ireland, 2009-2018, expressed in DDD per 1000 inhabitants per day



Source: Health Protection Surveillance Centre (HPSC)

Note: See appendix for detailed indicator definitions and methodology.

Figure 72: Community antibiotic consumption by country in Europe 2017, expressed in DDD per 1000 inhabitants per day



Source: EASC-Net

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 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

Ireland's National Action Plan on Antimicrobial Resistance 2017-2020 (iNAP) recognises the urgent and growing problem of antimicrobial resistance for human health worldwide. It aims to implement policies and actions to prevent, monitor and combat AMR across the health, agricultural and environmental sectors. 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.

Surveillance of antibiotic usage has been identified as a key component in iNAP. This plan was developed in conjunction with the Department of Agriculture, Food and the Marine in line with the One Health approach to antimicrobial resistance.

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".

The HSE Antimicrobial Resistance and Infection Control Team report that the median rate of antimicrobial consumption in public acute hospitals in Ireland for 2018 was 88.4 defined daily doses per 100 bed days used (DDD/100BDU; range = 30.3 to 113.4, n = 41), a slight increase on the rate for the previous year (86.3 DDD/100BDU). This rate is mid-range in comparison with other European countries.

Notes on Measurement Changes

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%.

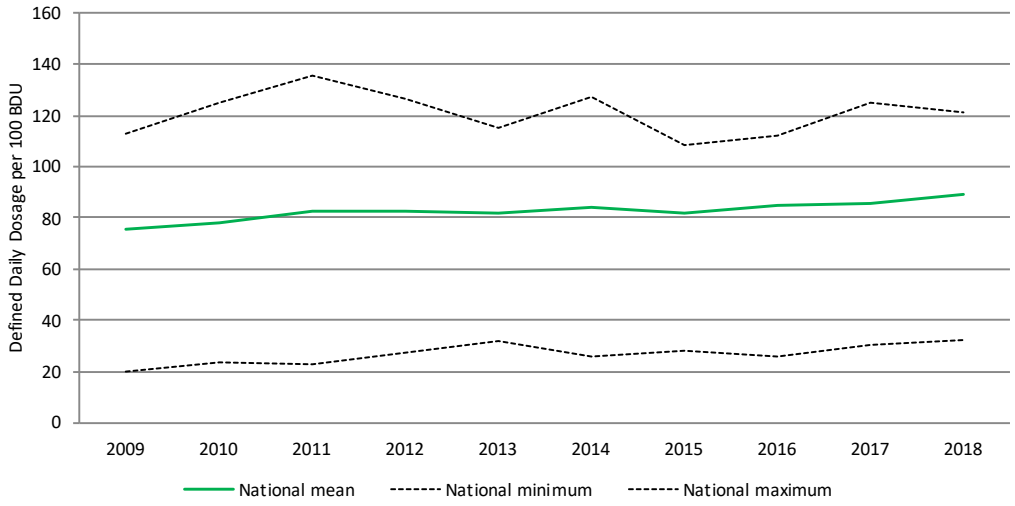
Rationale for the inclusion of indicator

Excessive prescription of antibiotics is connected to the development of antimicrobial resistance. Antimicrobial resistance leads to higher medical costs, prolonged hospital stays, and increased mortality.

Commentary

- The total volume of antibiotics consumed in hospitals annually has increased over the last ten years, from a consumption rate of 75.6 per 100 BDU in 2009 to 89.2 per 100 BDU in 2018.
- While considerable variation in antibiotic consumption by hospital is seen, as discussed above, the rate may be appropriate to the specific patient population served by individual hospitals.
- However, this caveat notwithstanding, the considerable variation seen at hospital group level warrants further consideration and investigation.

Figure 73: Total in-hospital antibiotic consumption, 2009-2018, expressed in DDD per 100 bed days used (BDU)



Source: Health Protection Surveillance Centre

Note: 2018 data is provisional and may be subject to change.

Starting from 2017, returned items to the dispensary are subtracted from the overall consumption rates. 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.

Note: See appendix for detailed indicator definitions and methodology.

Table 20: Total antibiotic consumption in public hospitals, expressed in DDD per 100 BDU, 2018

Hospital Group	2018
Ireland East	**89.8**
Cappagh National Orthopaedic Hospital	32.4
Mater Misericordiae University Hospital	92.8
Midland Regional Hospital, Mullingar	91.6
National Maternity Hospital, Holles Street	38.1
Our Lady's Hospital, Navan	106.9
Royal Victoria Eye and Ear Hospital, Dublin	46.7
St. Columcille's Hospital, Loughlinstown	59.2
St. Luke's General Hospital, Kilkenny	96.8
St. Michael's Hospital, Dun Laoghaire	89.0
St. Vincent's University Hospital, Elm Park	104.7
Wexford General Hospital	93.00
Dublin Midlands	**90.7**
St. James's Hospital	106.8
Tallaght University Hospital	90.2
Coombe Women's and Infant's University Hospital	39.7
Midland Regional Hospital, Portlaoise	90.8
Midland Regional Hospital, Tullamore	89.9
Naas General Hospital	105.4
St Luke's Hospital, Rathgar	35.6

Table 20 contd.

Hospital Group	2018
RCSI Hospitals	**95.8**
Our Lady of Lourdes Hospital, Drogheda	99.3
Beaumont Hospital	102.7
Connolly Hospital, Blanchardstown	90.2
Rotunda Hospital	37.9
Cavan General Hospital	110.6
UL Hospitals	**92.7**
University Hospital Limerick	98.4
Nenagh Hospital	63.6
Ennis Hospital	80.8
St. Johns Hospital, Limerick	80.6
South / South West	**90.6**
Cork University Hospital	84.9
University Hospital Waterford	97.0
University Hospital Kerry, Tralee	83.5
South Tipperary General Hospital, Clonmel	121.4
Mercy University Hospital, Cork	94.9
Kilkreene Orthorpaedic Hospital, Co. Kilkenny	41.7
South Infirmary-Victoria Hospital, Cork	56.9
Saolta	**78.1**
Galway University Hospitals	67.6
Mayo University Hospital	85.5
Letterkenny University Hospital	96.8
Sligo University Hospital	69.9
Portiuncula University Hospital, Ballinasloe	100.2
Roscommon University Hospital	68.0
Children's Hospitals	**72.2**
Children's University Hospital, Temple St	65.9
Our Lady's Children's Hospital, Crumlin	75.4
National average	**89.2**

Source: Health Protection Surveillance Centre (HPSC)

Notes: 2018 data is provisional and subject to change.

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 rates is likely to be observed.

See appendix for detailed indicator definitions and methodology.

Chronic benzodiazepine[1] usage in the community in people aged 65 years and over

Definition

The number of patients aged 65 years and over (per 1,000 patients) who have had a reimbursable prescription for a benzodiazepine medication dispensed for 12 months or more[2] via the Community Drugs Schemes[3].

Description

Benzodiazepines are a class of medication that can be used in the treatment of a number of conditions, including treatment of insomnia, anxiety, addiction, agitation and neurological disorders (70). When they are well prescribed, benzodiazepines are considered relatively safe, as they are effective, fast acting and have low toxicity (71). Benzodiazepines are also prescribed in the treatment of muscle spasticity, involuntary movement disorders, detoxification from alcohol, and anxiety associated with cardiovascular or gastrointestinal conditions. In the late 1970's, benzodiazepines were the most commonly prescribed drugs worldwide (70).

However, as with any medicine, their use also carries the risk of side effects and toxic reactions, particularly among the elderly. 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 (70).

Europe has traditionally been the region with the highest calculated average national consumption rates for benzodiazepine-type anxiolytics (71).

Dependence to benzodiazepines is recognised as a significant risk in patients receiving treatment for longer than one month (72).

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 guidelines, toolkits and resources on the prescription of benzodiazepines in February 2018. This guidance is relevant to prescribers and may also be useful to pharmacists and other health care professionals.

Rationale for inclusion of indicator

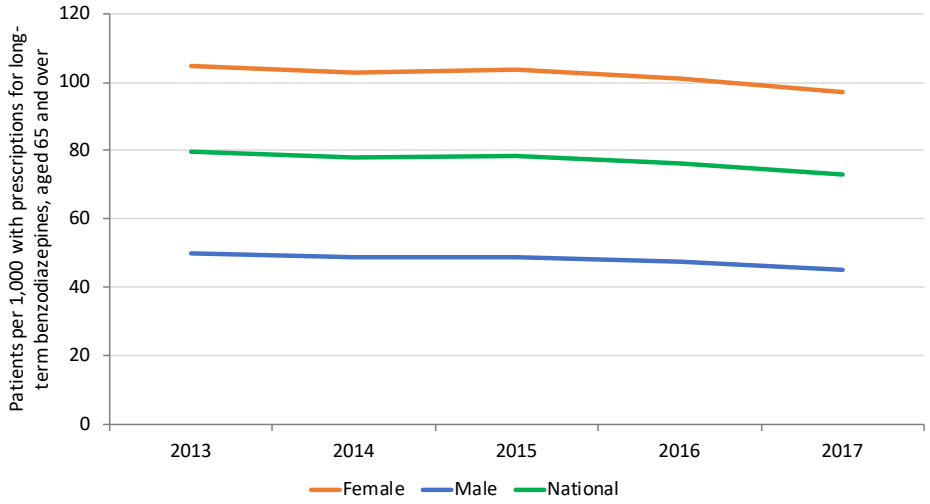
Benzodiazepines are often prescribed for older adults for anxiety and sleep disorders, despite the risk of adverse side effects such as fatigue, dizziness and confusion. Long-term use of benzodiazepines can lead to adverse events (falls, road accidents and overdose), tolerance, dependence and dose escalation (OECD, 2017). Ireland reports higher than average rates for chronic prescription of benzodiazepines in patients aged 65 and over.

Commentary

- The overall national chronic prescription rate as available via the Primary Care Reimbursement Service in Ireland has been declining with a rate of 80 patients per 1,000 aged 65 years and older with a prescription for a benzodiaepine for chronic use dispensed in 2013 to a rate of 73 patients per 1,000 in 2017. It is important to note that the Primary Care Reimbursement Service only contains information on prescriptions dispensed through one of the public schemes it administers. It excludes information on private presciption dispensing. However, it includes information on prescriptions dispensed to nursing home residents where these are dispensed through Community Drugs Schemes.
- There is a large variation in the prescription rates between men and women, with women being prescribed benzodiazepines for chronic use more frequently.
- There is also large regional variation in the rate of prescriptions across community health office and local health office areas in Ireland.
- Across the OECD, on average around 25 per 1,000 older adults are chronic benzodiazepine users (≥365 defined daily doses in one year). Ireland reports the highest rate of chronic benzodiazepine prescription in the OECD. It should be noted that only 16 of the 34 countries contributed data to the most recent Health at a Glance publication (70).
- 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.

[1] This indicator refers to benzodiazepine and related drugs which include the following ATC codes: N05BA, N05CD and N05CF. See appendix for detailed indicator definitions and methodology.
[2] 12 months or greater is considered to be equivalent to 365 days or greater.
[3] Community Drugs Schemes refer to the General Medical Services Scheme, the Drug Payments Scheme and the Long Term Illness Scheme.

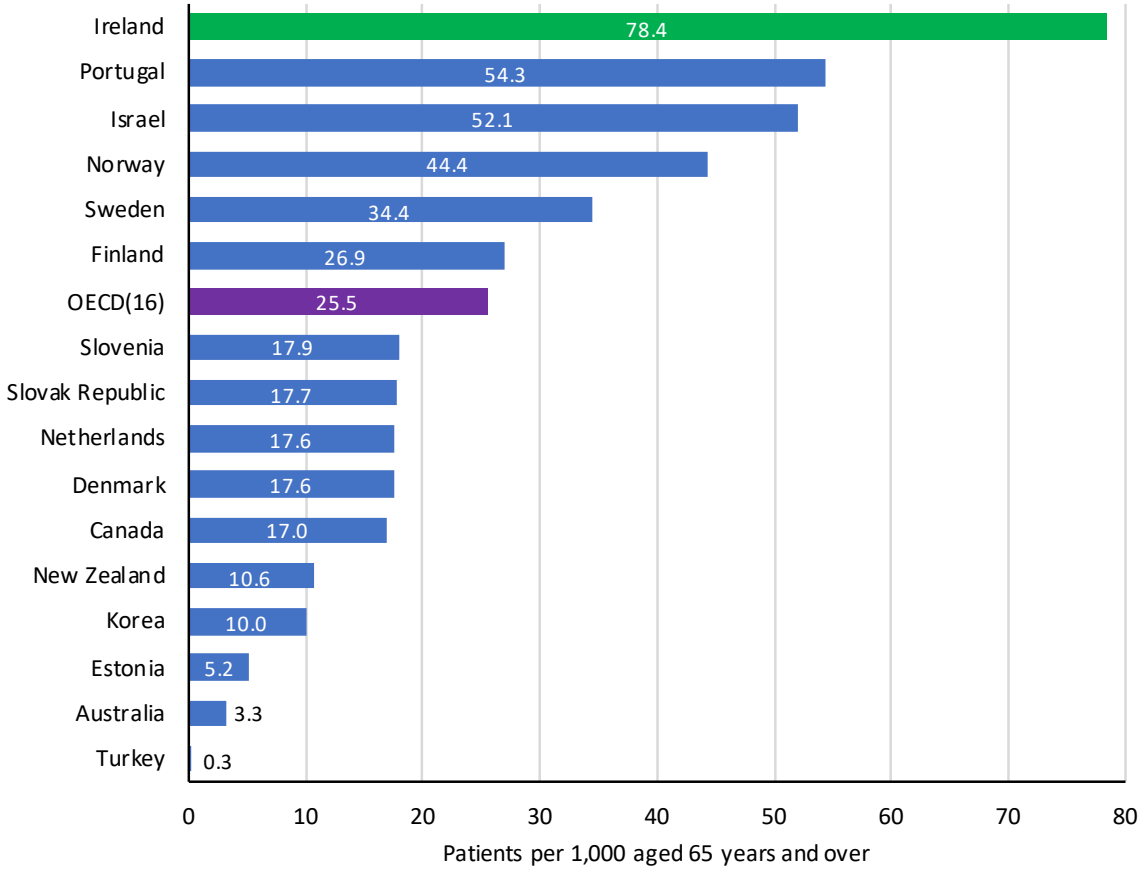
Figure 74: Number of eligible patients per 1,000 with prescriptions dispensed for benzodiazepines or related drugs, aged 65 years and over, for 12 months or greater, 2013-2017



Source: Primary Care Reimbursement Service

Notes: Eligible patients refer to those who are eligible to claim for a prescription via Community Drugs Schemes and are captured via the Primary Care Reimbursement Service's information system. See appendix for detailed indicator definitions and methodology.

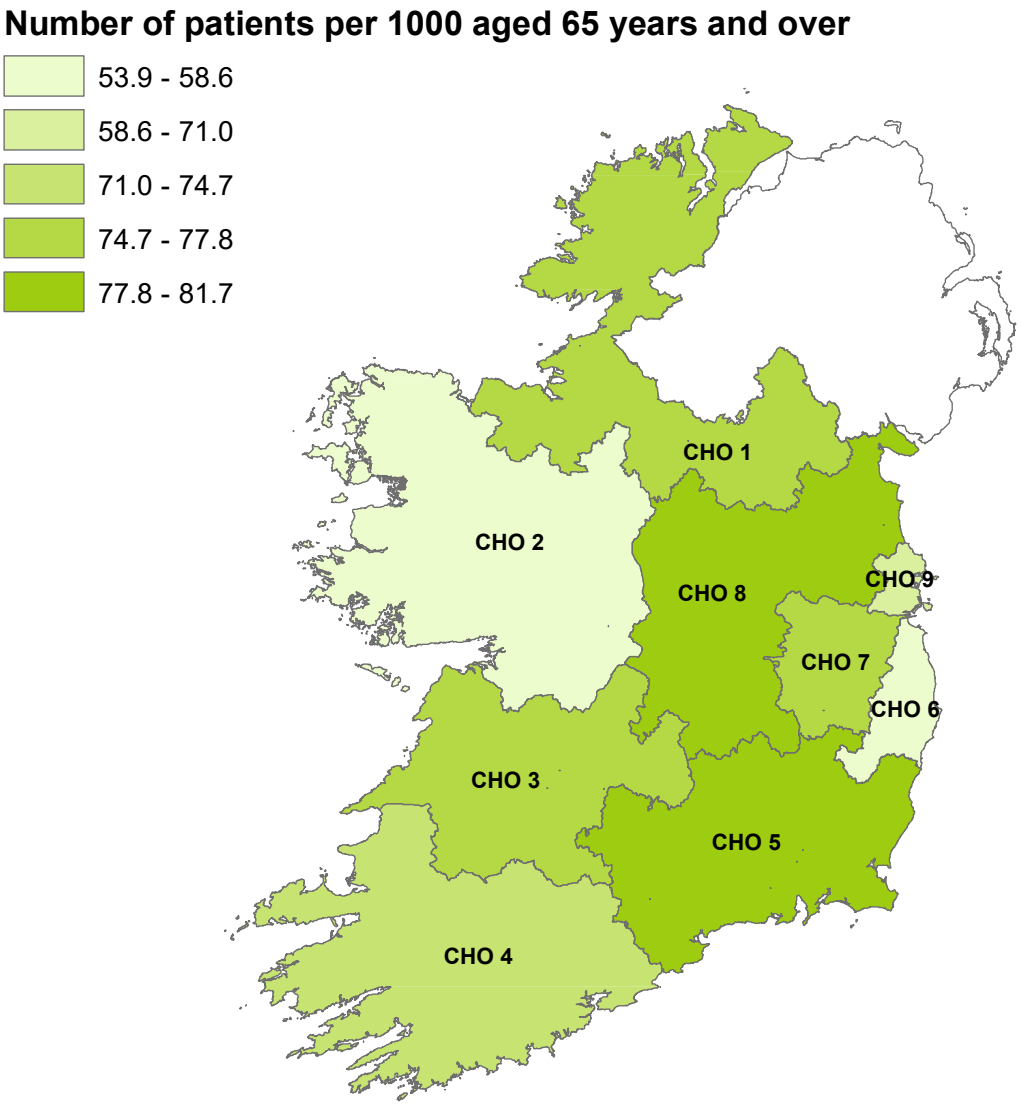
Figure 75: Number of people per 1000 with prescriptions dispensed for benzodiazepines or related drugs, aged 65 and over, 12 months or greater, for selected OECD countires, 2015 (or nearest year)



Source: OECD Health Statistics

Notes: Eligible patients refer to those who are eligible to claim for a prescription via Community Drugs Schemes and are captured via the Primary Care Reimbursement Service's information system. See appendix for detailed indicator definitions and methodology. Differences in coding practices among countries and the definition of an admission may affect the comparability of data. Differences in prescription policies and reimbursement systems may also affect data comparability.

Figure 76: Number of eligible patients per 1000 with prescriptions dispensed for benzodiazepines or related drugs, aged 65 and over, for 12 months or greater, by Community Health Organisation , 2017



Source: Primary Care Reimbursement Service

Notes: Eligible patients refer to those who are eligible to claim for a prescription via Community Drugs Schemes and are captured via the Primary Care Reimbursement Service's information system. See appendix for detailed indicator definitions and methodology.

Table 21: Number of eligible patients per 1000 with prescriptions dispensed for benzodiazepines or related drugs, aged 65 and over, 12 months or greater, by Community Health Organisation and Local Health Office, 2017

Community Health Organisation	Local Health Office	2017
CHO 1	Cavan/Monaghan	82.7
	Donegal	72.5
	Sligo/Leitrim	75.2
	CHO 1 Total	**76.4**
CHO 2	Galway	55.6
	Mayo	57.3
	Roscommon	71.2
	CHO 2 Total	**58.6**
CHO 3	Clare	65.3
	Limerick	85.5
	Tipperary NR/East Limerick	76.9
	CHO 3 Total	**77.6**
CHO 4	North Cork	62.1
	North Lee	92.2
	South Lee	89.2
	West Cork	52.2
	Kerry	57.0
	CHO 4 Total	**74.7**
CHO 5	Carlow/Kilkenny	78.5
	Tipperary South	98.8
	Waterford	78.6
	Wexford	71.3
	CHO 5 Total	**80.2**
CHO 6	Dublin South	49.1
	Dublin South East	58.7
	Wicklow	55.3
	CHO 6 Total	**53.9**
CHO 7	Dublin South City	79.9
	Dublin South West	83.6
	Dublin West	77.6
	Kildare/West Wicklow	71.6
	CHO 7 Total	**77.8**
CHO 8	Laois/Offaly	76.6
	Longford/Westmeath	88.2
	Louth	95.3
	Meath	72.2
	CHO 8 Total	**81.7**
CHO 9	Dublin North West	67.2
	Dublin North Central	79.0
	Dublin North	68.8
	CHO9 Total	**71.0**
National Rate		**73.1**

Source: Primary Care Reimbursement Service

Notes: Eligible patients refer to those who are eligible to claim for a prescription via Community Drugs Schemes and are captured via the Primary Care Reimbursement Service's information system. See appendix for detailed indicator definitions and methodology.

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Appendix 1: Metadata sheets

Indicator	Immunisation rate for MMR vaccine
Definition	Percentage of children 24 months of age who have received the MMR (measles, mumps and rubella) vaccine
Years Covered	National trend: 2009 – 2018 Community Health Organisation and Local Health Office: 2018
Classification	N/A
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 2008 and 2010 are incomplete as data for some regions were incomplete. Please note 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 24 months of age who have received the MenC vaccine
Years Covered	National trend: 2009 – 2018 Community Health Organisation and Local Health Office: 2018
Classification	N/A
Methodology	**Numerator:** Prior to October 1st 2016: Number of children who have received 3 doses of the Meningitis C vaccination by their second birthday. After October 1st 2016: Number of children who have received 2 doses of the Meningitis C vaccination by their second birthday. **Denominator:** Number of children who have reached their second birthday.
Notes	Data for Q3 2008 were not available for 2 regions. The data for 2009 and 2010 are incomplete as data for some regions were incomplete. Please note while North Lee and South Lee are two separate LHOs their combined immunisation uptake data are reported here. 2016 receive one dose of MenC at 6 months and a second dose of MenC (as part of a combinedHib/MenC vaccine) at 13 months. The schedule changed to facilitate the introduction of meningococcal B (MenB) vaccine at 2 and 4 months of age. The schedule changed again for all babies born on or after October 1st 2016. Babies born on or after October 1st
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 with a medical card or GP Visit Card who have been vaccinated against influenza.
Years Covered	National trend: 2007/2008 – 2018/2019 OECD Comparison: 2016 (or nearest year)
Classification	N/A
Methodology	**Numerator:** 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. **Denominator:** Number of medical card and GP Visit Card holders aged 65 years and over.
Notes	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 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. Data for the 2018/2019 influenza season is provisional.
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 in hospitals who received the seasonal influenza vaccine
Years Covered	National Trend: HSE-funded hospitals 2011/2012 – 2018/2019 Staff categories comparison: 2018/2019
Classification	N/A
Methodology	**Numerator:** Number of healthcare workers in HSE-funded 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 hospitals
Notes	Data are provisional for the 2018/2019 influenza season. Data from other hospitals (private) is provided annually on a voluntary basis to HPSC.
Data Source(s)	**Health Protection Surveillance Centre**

Indicator	Immunisation rate for human papillomavirus (HPV) vaccine
Definition	Percentage of girls in first year of second level schools and their age equivalents* who have received the HPV vaccine.
Years Covered	National Trend: Academic years (September to September) 2014/15-2016/17 Community Health Organisation and Local Health Office Comparison: Academic year 2016/2017
Classification	N/A
Methodology	**Numerator:** Number of girls who have received 2 doses of the HPV vaccine by the end of their first academic year at second level **Denominator:** Number of girls in their first academic year at second level on the school role on 30th September and, for their age equivalents, the number of girls on the school role of special schools or registered with the National Educational Welfare Board on 30th September
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. Due to the unavailability of data for the 2017/2018 academic year was unavailable at time of publication. * Age equivalents include those attending special schools or registered with the Educational Welfare Service of the Child and Family Agency, TUSLA 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 and County: Cohort 2008-2017 OECD Comparison: 2016 (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 2017 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 smear test within a five year time period.
Years Covered	National level: Rolling 5-year period covering 01/09/2012-31/08/2017 County level: Rolling 5-year period covering 01/09/2012-31/08/2017 OECD Comparison: 2016 (or nearest year)
Classification	N/A
Methodology	**Numerator:** The number of women in the eligible population who have had a satisfactory smear 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 2011 estimate projected to 2013, (adjusted for hysterectomy).
Notes	This is a rolling parameter which is updated each year to incorporate the previous 5-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 two year time period.
Years Covered	National and County 2016-2017
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.
Notes	The data for 2016 is provisional. 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**

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: 2009 – 2018 OECD comparison: 2015 (or nearest year) County of residence: 2016 – 2018 (aggregated)
Classification	ICD-10-AM/ACHI 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) iii. Cases that are discharged on the day of admission **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality Indicators (HCQI) data collection. 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 2015 to 2017 refer to the average annual rate over the three year period.
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.

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 has been revised following the release of Census 2016 results. Hospitalisation rates are therefore not directly comparable to previous 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	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: 2009 – 2018 OECD comparison: 2015 (or nearest year) County of residence: 2016-2018 (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 **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality Indicators (HCQI) data collection. 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 2015 to 2017 refer to the average annual rate over the three year period.
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.

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 has been revised following the release of Census

2016 results. Hospitalisation rates are therefore not directly comparable to previous 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	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: 2008– 2018 OECD comparison: 2015 (or nearest year) County of residence: 2016 – 2018 (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

Age-sex standardisation:

Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality Indicators (HCQI) data collection.

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 agesex 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 2015 to 2017 refer to the average annual rate over the two year period.

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.

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 which resulted in a change in how diabetes is reported in HIPE and hence the rates years subsequent to 2015 are not directly comparable with those from previous years. the classification.

Population estimates for years 2012-2016 has been revised following the release of Census 2016 results. Hospitalisation rates are therefore not directly comparable to previous 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: 2009 – 2018 OECD comparison: 2015 (or nearest year) County of residence: 2016 – 2018 (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 **Age-sex standardisation:** Data have been age and sex standardised based on the methodology developed and used by the OECD Health Care Quality Indicators (HCQI) data collection. 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 agesex 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 2015 to 2017 refer to the average annual rate over the three year period.
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.

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 has been revised following the release of Census 2016 results. Hospitalisation rates are therefore not directly comparable to previous 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	Breast cancer survival rates
Definition	Age-standardised estimates of cumulative 5-year net survival in Ireland for female breast cancer patients diagnosed in the period 2010 - 2014 and 2011-2015
Years Covered	National and HSE Region: Cohort 2011 – 2015 OECD: Cohorts 2010-2014 (or nearest period)
Classification	ICD-10-AM C50, ICD-9-CM 174
Methodology	Age-standardized period estimates of 'Pohar Perme' estimates of net survival for the follow-up period 2011-2015. 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 standardized to the International Cancer Survival Standard (ICSS) populations [67].
Notes	Net survival is used throughout this report for the first time, following on from a methodological change by the OECD. 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: Pohar Perme M, Henderson R, Stare J. 2009. An approach to estimation in relative survival regression. Biostatistics 10: 136-146. Survival estimates are standardized to the International Cancer Survival Standard (ICSS) populations proposed for each cancer by: Corazziari I., Quinn M. & Capocaccia R. 2004. Standard cancer patient population for age standardising survival ratios. Eur J Cancer 40: 2307-2316. **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 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 during the period 2011- 2015
Years Covered	National and HSE Region: Cohort 2011 – 2015 OECD: cohorts 2010-2014 (or nearest period)
Classification	ICD-10-AM C53, ICD-9-CM 180
Methodology	Age-standardized period estimates of 'Pohar Perme' estimates of net survival for the follow-up period 2011-2015 (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 standardized to the International Cancer Survival Standard (ICSS) populations [67].
Notes	Net survival is used throughout this report for the first time, following on from a methodological change by the OECD. 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: Pohar Perme M, Henderson R, Stare J. 2009. An approach to estimation in relative survival regression. Biostatistics 10: 136-146. Survival estimates are standardized to the International Cancer Survival Standard (ICSS) populations proposed for each cancer by: Corazziari I., Quinn M. & Capocaccia R. 2004. Standard cancer patient population for age standardising survival ratios. Eur J Cancer 40: 2307-2316. **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 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	Colorectal cancer survival rates
Definition	Age-sex standardised estimates of cumulative 5-year net survival in Ireland for colorectal cancer patients for the period 2011- 2015.
Years Covered	National and HSE Region: Cohort 2011 – 2015 OECD: cohorts 2010-2014 (or nearest period)
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 period 2010-2014 (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 [67].
Notes	Net survival is used throughout this report for the first time, following on from a methodological change by the OECD. 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: Pohar Perme M, Henderson R, Stare J. 2009. An approach to estimation in relative survival regression. Biostatistics 10: 136-146. Survival estimates are standardized to the International Cancer Survival Standard (ICSS) populations proposed for each cancer by: Corazziari I., Quinn M. & Capocaccia R. 2004. Standard cancer patient population for age standardising survival ratios. Eur J Cancer 40: 2307-2316. **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 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	Lung cancer survival rates
Definition	Age-sex standardised estimates of cumulative 5-year net survival in Ireland for lung cancer patients for the period 2011- 2015.
Years Covered	National and HSE Region: Cohort 2011 – 2015 CONCORDE: cohorts 2010-2014 (or nearest period)
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 period 2011-2015 (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 [67]. Net survival is used throughout this report for the first time, following on from a methodological change by the OECD. 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: Pohar Perme M, Henderson R, Stare J. 2009. An approach to estimation in relative survival regression. Biostatistics 10: 136-146. Survival estimates are standardized to the International Cancer Survival Standard (ICSS) populations proposed for each cancer by: Corazziari I., Quinn M. & Capocaccia R. 2004. Standard cancer patient population for age standardising survival ratios. Eur J Cancer 40: 2307-2316.
Notes	**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 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** Global surveillance of trends in cancer survival 2000–14(CONCORD-3): analysis of individual records for 37, 513, 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries

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: 2009 – 2018 OECD comparison: 2015 (or nearest year) Hospital & hospital group level: 2016 – 2018 (aggregated)
Classification	ICD-10-AM I21 or I22, ICD-9-CM 410
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 Indicators (HCQI) data collection. 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 agegroup 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 ASR ± 1.96 * Standard Error of ASDR where the standard error is determined from a binomial distribution.
Notes	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 nonacute 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 less than 100 denominator cases, although the data for these hospitals have been included in the calculation of the national 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 Indicators (HCQI) project.

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 2018
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, AMNCH Tallaght, Our Lady of Lourdes Hospital Drogheda, Cavan General Hospital, Beaumont Hospital, University Hospital Waterford, South Tipperary Hospital, Portiuncula Hospital, Mayo General 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 General Hospital Portlaoise, University Hospital Limerick, Cork University Hospital, Mercy Hospital Cork, Bantry Hospital, University Hospital Galway.
Methodology	The proportion of patients nationally whose principal diagnosis is stroke (ICD codes above) who are admitted to a hospital with a stroke unit.
Notes	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: 2009 – 2018 OECD comparison: 2015 (or nearest year) Hospital & hospital group level: 2016 – 2018 (aggregated)
Classification	ICD-10-AM I60 - I62, ICD-9-CM 430 – 432
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 Indicators (HCQI) data collection. 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 agegroup 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	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 nonacute 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 less than 100 denominator cases, although the data for these hospitals have been included in the calculation of the national 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 Indicators (HCQI) project.

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: 2009 – 2018 OECD comparison: 2015 (or nearest year) Hospital & hospital group level: 2016 – 2018 (aggregated)
Classification	ICD-10-AM I63 - I64, ICD-9-CM 433, 434 or 436 **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 Indicators (HCQI) data collection. 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 agegroup 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	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 nonacute 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 less than 100 denominator cases, although the data for these hospitals have been included in the calculation of the national 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 Indicators (HCQI) project.

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: 2009 – 2018 OECD comparison: 2015 (or nearest year) Hospital & hospital group level: 2016 – 2018 (aggregated)
Classification	**Hip fracture diagnostic codes:** ICD-10-AM S72.0, S71.1, S72.2, ICD-9-CM 820 **Hip fracture surgery codes:** ACHI blocks 1479, 1486, 1487, 1488, 1489, 1491, 1492 or ICD-9-CM 78.05, 78.15, 78.55, 79.05, 79.15, 79.25, 79.35, 79.75, 79.85, 81.21, 81.40, 81.51, 81.52, 81.53
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 Indicators (HCQI) project. It should be noted that the methodology specified by the OECD for the 2012-2013 data collection allowed countries to define the waiting time for hip fracture surgery based on either 48 hours or 2 days. This may reduce the comparability of this indicator among OECD countries. The 2014-2015 HCQI data collection defines this indicator as surgery within 2 calendar days after admission which will improve the comparability of the data.
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 Indicators (HCQI) project. **OECD Health Statistics**

Indicator	Caesarean section rates
Definition	The rate of caesarean section deliveries per 100 live births.
Years Covered	National trend: 2007 – 2016 OECD comparison: 2016 (or nearest year) Hospital & hospital group level: 2016
Classification	Not applicable
Methodology	Data are based on the caesarean section rate per 100 live births for total maternities. **Exclusions:** • Data exclude births in Mount Carmel Private Hospital, Bon Secours Private Hospitals (2004-2007) and planned domiciliary home births attended by a self-employed community midwife. • 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 for 2016 is provisional.
Data Source(s)	**National Perinatal Reporting System (NPRS)** The Healthcare Pricing Office (HPO) manages the NPRS system. The data presented in this report were sourced directly from the Healthcare Pricing Office in March 2018 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**

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	2018
Classification	N/A
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Patient Experience Survey which is available at https://www.patientexperience.ie/app/uploads/2018/03/NPE_Survey_Technical_Report_2017. Pdf Detailed information regarding survey and sample design is available at section 5.2.1 of the Technical Report. Questions for the NPES were pulled from the Picker Institute Europe 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. This report provides information about the patient experiences as reported in similar jurisdictions who have also conducted acute inpatient experience surveys. To align the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" or "yes, sometimes" were combined in Table 19. Appendix 4 describes the methods used in other jurisdictions. The questions reported on in Domain 4 were identical to those used internationally, unless noted.
Notes	It should be noted that each jurisdiction differs in the method by which they disseminate and collect information. This can take shape in the format in which they collect information (online only, post and online, etc.). Jurisdictions may also differ in their selection criteria for patient respondents according to age cohorts (such as including all those over 16, or including all those over 18). Some jurisdictions conduct their patient experience surveys on an ongoing or rolling basis, while others select a period of time annually or biannually in which patients are surveyed. All of these differences in methodology may impact upon the results generated in each survey. Caution in comparison is advised.
Data Source(s)	**National Patient 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	2018
Classification	N/A
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Patient Experience Survey which is available at https://www.patientexperience.ie/app/uploads/2018/03/NPE_Survey_Technical_Report_2017. Pdf Detailed information regarding survey and sample design is available at section 5.2.1 of the Technical Report. Questions for the NPES were pulled from the Picker Institute Europe Each question, with the exception of the overall experience rating, within the National Patient Experience Survey had 3 to 5 answer selections. The percentage of responses for each available answer choice for each question were then described. In some cases, where two or more answer choices indicated that the question was not specific or applicable to the respondent's experience, the percentage of responses corresponding to those answer choices were combined, as noted in the chart. This report provides information about the patient experiences as reported in similar jurisdictions who have also conducted acute inpatient experience surveys. To align the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" or "yes, sometimes" were combined in Table 19. The questions reported on in Domain 4 were identical to those used internationally, unless noted.
Notes	It should be noted that each jurisdiction differs in the method by which they disseminate and collect information. This can take shape in the format in which they collect information (online only, post and online, etc.). Jurisdictions may also differ in their selection criteria for patient respondents according to age cohorts (such as including all those over 16, or including all those over 18). Some jurisdictions conduct their patient experience surveys on an ongoing or rolling basis, while others select a period of time annually or biannually in which patients are surveyed. All of these differences in methodology may impact upon the results generated in each survey. Caution in comparison is advised.
Data Source(s)	**National Patient 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	2018
Classification	N/A
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Patient Experience Survey which is available at https://www.patientexperience.ie/app/uploads/2018/03/NPE_Survey_Technical_Report_2017. Pdf Detailed information regarding survey and sample design is available at section 5.2.1 of the Technical Report. Questions for the NPES were pulled from the Picker Institute Europe Each question, with the exception of the overall experience rating, within the National Patient Experience Survey had 3 to 5 answer selections. The percentage of responses for each available answer choice for each question were then described. In some cases, where two or more answer choices indicated that the question was not specific or applicable to the respondent's experience, the percentage of responses corresponding to those answer choices were combined, as noted in the chart. This report provides information about the patient experiences as reported in similar jurisdictions who have also conducted acute inpatient experience surveys. To align the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" or "yes, sometimes" were combined in Table 19. Appendix 4 describes the methods used in other jurisdictions. The questions reported on in Domain 4 were identical to those used internationally, unless noted.
Notes	It should be noted that each jurisdiction differs in the method by which they disseminate and collect information. This can take shape in the format in which they collect information (online only, post and online, etc.). Jurisdictions may also differ in their selection criteria for patient respondents according to age cohorts (such as including all those over 16, or including all those over 18). Some jurisdictions conduct their patient experience surveys on an ongoing or rolling basis, while others select a period of time annually or biannually in which patients are surveyed. All of these differences in methodology may impact upon the results generated in each survey. Caution in comparison is advised.
Data Source(s)	**National Patient 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	2018
Classification	N/A
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Patient Experience Survey which is available at https://www.patientexperience.ie/app/uploads/2018/03/NPE_Survey_Technical_Report_2017. Pdf Detailed information regarding survey and sample design is available at section 5.2.1 of the Technical Report. Questions for the NPES were pulled from the Picker Institute Europe Each question, with the exception of the overall experience rating, within the National Patient Experience Survey had 3 to 5 answer selections. The percentage of responses for each available answer choice for each question were then described. In some cases, where two or more answer choices indicated that the question was not specific or applicable to the respondent's experience, the percentage of responses corresponding to those answer choices were combined, as noted in the chart. This report provides information about the patient experiences as reported in similar jurisdictions who have also conducted acute inpatient experience surveys. To align the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" or "yes, sometimes" were combined in Table 19. Appendix 4 describes the methods used in other jurisdictions. The questions reported on in Domain 4 were identical to those used internationally, unless noted.
Notes	It should be noted that each jurisdiction differs in the method by which they disseminate and collect information. This can take shape in the format in which they collect information (online only, post and online, etc.). Jurisdictions may also differ in their selection criteria for patient respondents according to age cohorts (such as including all those over 16, or including all those over 18). Some jurisdictions conduct their patient experience surveys on an ongoing or rolling basis, while others select a period of time annually or biannually in which patients are surveyed. All of these differences in methodology may impact upon the results generated in each survey. Caution in comparison is advised.
Data Source(s)	**National Patient 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?"
Years Covered	2018
Classification	N/A
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Patient Experience Survey which is available at https://www.patientexperience.ie/app/uploads/2018/03/NPE_Survey_Technical_Report_2017. Pdf Detailed information regarding survey and sample design is available at section 5.2.1 of the Technical Report. Questions for the NPES were pulled from the Picker Institute Europe Each question, with the exception of the overall experience rating, within the National Patient Experience Survey had 3 to 5 answer selections. The percentage of responses for each available answer choice for each question were then described. In some cases, where two or more answer choices indicated that the question was not specific or applicable to the respondent's experience, the percentage of responses corresponding to those answer choices were combined, as noted in the chart. This report provides information about the patient experiences as reported in similar jurisdictions who have also conducted acute inpatient experience surveys. To align the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" or "yes, sometimes" were combined in Table 19. Appendix 4 describes the methods used in other jurisdictions. The questions reported on in Domain 4 were identical to those used internationally, unless noted.
Notes	It should be noted that each jurisdiction differs in the method by which they disseminate and collect information. This can take shape in the format in which they collect information (online only, post and online, etc.). Jurisdictions may also differ in their selection criteria for patient respondents according to age cohorts (such as including all those over 16, or including all those over 18). Some jurisdictions conduct their patient experience surveys on an ongoing or rolling basis, while others select a period of time annually or biannually in which patients are surveyed. All of these differences in methodology may impact upon the results generated in each survey. Caution in comparison is advised.
Data Source(s)	**National Patient 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	2018
Classification	N/A
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Patient Experience Survey which is available at https://www.patientexperience.ie/app/uploads/2018/03/NPE_Survey_Technical_Report_2017. Pdf Detailed information regarding survey and sample design is available at section 5.2.1 of the Technical Report. Questions for the NPES were pulled from the Picker Institute Europe Each question, with the exception of the overall experience rating, within the National Patient Experience Survey had 3 to 5 answer selections. The percentage of responses for each available answer choice for each question were then described. In some cases, where two or more answer choices indicated that the question was not specific or applicable to the respondent's experience, the percentage of responses corresponding to those answer choices were combined, as noted in the chart. This report provides information about the patient experiences as reported in similar jurisdictions who have also conducted acute inpatient experience surveys. To align the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" or "yes, sometimes" were combined in Table 19. Appendix 4 describes the methods used in other jurisdictions. The questions reported on in Domain 4 were identical to those used internationally, unless noted.
Notes	It should be noted that each jurisdiction differs in the method by which they disseminate and collect information. This can take shape in the format in which they collect information (online only, post and online, etc.). Jurisdictions may also differ in their selection criteria for patient respondents according to age cohorts (such as including all those over 16, or including all those over 18). Some jurisdictions conduct their patient experience surveys on an ongoing or rolling basis, while others select a period of time annually or biannually in which patients are surveyed. All of these differences in methodology may impact upon the results generated in each survey. Caution in comparison is advised.
Data Source(s)	**National Patient 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	2018
Classification	N/A
Methodology	HIQA have published a Technical Report regarding the survey design, data collection, and data analysis methods for the National Patient Experience Survey which is available at https://www.patientexperience.ie/app/uploads/2018/03/NPE_Survey_Technical_Report_2017. Pdf Detailed information regarding survey and sample design is available at section 5.2.1 of the Technical Report. Questions for the NPES were pulled from the Picker Institute Europe Each question, with the exception of the overall experience rating, within the National Patient Experience Survey had 3 to 5 answer selections. The percentage of responses for each available answer choice for each question were then described. In some cases, where two or more answer choices indicated that the question was not specific or applicable to the respondent's experience, the percentage of responses corresponding to those answer choices were combined, as noted in the chart. This report provides information about the patient experiences as reported in similar jurisdictions who have also conducted acute inpatient experience surveys. To align the Irish survey outputs to those of other countries, the percentage of survey participants who responded with "yes definitely" or "yes, sometimes" were combined in Table 19. Appendix 4 describes the methods used in other jurisdictions. The questions reported on in Domain 4 were identical to those used internationally, unless noted.
Notes	It should be noted that each jurisdiction differs in the method by which they disseminate and collect information. This can take shape in the format in which they collect information (online only, post and online, etc.). Jurisdictions may also differ in their selection criteria for patient respondents according to age cohorts (such as including all those over 16, or including all those over 18). Some jurisdictions conduct their patient experience surveys on an ongoing or rolling basis, while others select a period of time annually or biannually in which patients are surveyed. All of these differences in methodology may impact upon the results generated in each survey. Caution in comparison is advised.
Data Source(s)	**National Patient Experience Survey**

Indicator	***Staphylococcus aueus* and Methicillin resistant *Staphylococcus aueus* (MRSA) blood stream infection rates**
Definition	Rate of *Staphylococcus aureus (S. aureus)* and methicillin-resistant *S. aureus* (MRSA) blood stream 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 quarter.
Years Covered	National trend: 2008 – 2017 European Antimicrobial Resistance Surveillance Network (EARS-net) comparison 2016
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.
Notes	Not applicable
Data Source(s)	**Health Protection Surveillance Centre EARS–Net**

Indicator	***Clostridium difficile (C Difficile)* rates**
Definition	The rate of new cases of *C. difficile* in acute hospitals per 10,000 bed days used.
Years Covered	National trend: 2010 – 2017
Classification	Not applicable
Methodology	Rates are calculated based on the number of new hospital acquired cases of *Clostridium 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 is not recommended unless data is adjusted for type of testing method used.
Data Source(s)	**Health Protection Surveillance Centre**

Indicator	Antibiotic consumption in the community
Definition	Community antibiotic consumption rates are measured in Defined Daily Dose (DDD) per 1,000 inhabitants per day from community consumption data.
Years Covered	National trend: 2009 -2018 Community antibiotic consumption by county: 2018 European Surveillance of Antimicrobial Consumption Network (ESAC-net) - European Centre for Disease Prevention and Control (ECDC) 2016.
Classification	Not applicable
Methodology	Community antibiotic consumption rates are measured in Defined Daily Dose (DDD) per 1,000 inhabitants per day (DID) from community consumption data. DDD is defined as the assumed average maintenance dose per day for a drug used for its main indication in adults.
Notes	Community antibiotic consumption data is obtained from the IMS Health (a pharmaceutical market research company) dataset which contains regional, monthly wholesaler to retail pharmacy sales data from over 95% of the wholesalers and manufacturers in Ireland. DDD is defined as the assumed average maintenance dose per day for a drug used for its main indication in adults.
Data Source(s)	**Health Protection Surveillance Centre** **EARS–Net**

Indicator	Antibiotic consumption in public acute hospitals
Definition	Hospital antibiotic consumption rates are measured in Defined Daily Dose (DDD) per 1000 inhabitants per day from hospital consumption data.
Years Covered	National trend: 2009-2018 In-hospital antibiotic consumption by county: 2018
Classification	Anatomical Therapeutic Chemical (ATC) Classification System
Methodology	Hospital antibiotic consumption rates expressed as Defined Daily Dose (DDD) per 1000 inhabitants per day (DID) 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. 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. DDD is defined as the assumed average maintenance dose per day for a drug used for its main indication in adults 2008 - 2017. 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 patients) who have had a reimbursable prescription for a benzodiazepine medication dispensed for 12 months or more via the Community Drugs Schemes.
Years Covered	National trend: 2013-2017 Chronic benzodiazepine usage by CHO/LHO: 2017 OECD: 2015 or nearest year
Classification	Anatomical Therapeutic Chemical (ATC) Classification System
Methodology	**Numerator:** Number of people aged 65 years of age on 1st January with one or more prescriptions of long-term benzodiazepines for 12 months or greater (ATC - N05BA or N05CD or N05CF). **Denominator:** Number of people aged 65 years or over on 1st January who claimed for prescriptions which are dispensed through 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 benzodiazepine prescriptions dispensed was greater than or equal to 12. Calculation of the indicator is based on the number of prescriptions of benzodiazepine medication(s) which are reimbursable by PCRS. One reimbursable prescription is considered to be equivalent to one month's worth of benzodiazepine 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.
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. 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:

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, currently €2.50 per item subject to a limit of €25 per family per month (effective 1st December 2013).

From 1st March 2017, the prescription charge for persons aged 70 & over, and their dependents, was reduced from €2.50 to €2.00 per item and the monthly cap for prescription charges decreased from €25.00 to €20.00 for this cohort. The prescription charge is recouped by the HSE from the Pharmacist.

Drugs Payment Scheme (DPS)
The Drugs Payment Scheme (DPS) provides for payment to the Pharmacist for the supply of medicines to individuals and families where the threshold of €144, effective from 1st January 2013, has been exceeded in a calendar month. 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. Other items which were reimbursable under the Drug Cost Subsidisation Scheme and Refund of Drugs Scheme continue, in certain circumstances, to be reimbursable under the Drugs Payment Scheme.

Long-Term Illness Scheme (LTI)
On approval by the Health Service Executive, persons who suffer from one or more of a schedule of 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 2: NHQRS Governance Committee Members

Ms Marita Kinsella (Chair from April 2019)	Director, National Patient Safety Office
Ms Rosarie Lynch (Interim Chair from September 2018 to March 2019)	Patient Safety Surveillance Unit, National Patient Safety Office, Department of Health
Ms Margaret Brennan	HSE Acute Operations
Mr Niall Byrne	Health and Social Care Regulatory Forum
Mr Tony Canavan	Community Healthcare Organisations
Mr Ian Carter	Hospital Groups
Mr Andy Conlon	Primary Care Division, Department of Health
Ms Brigid Doherty	Patient representative
Ms Dee Fitzpatrick	Patient representative
Ms Rachel Flynn	Health Information and Quality Authority
Ms Rachel Kenna	Chief Nurse's Office, Department of Health
Mr Richard Lodge	CEO, Pre-Hospital Emergency Care Council
Mr Gavin Maguire	HSE Quality and Verification Division
Dr Jennifer Martin	HSE Quality Improvement Division
Mr Liam Morris	Acute Hospitals Policy Division, Department of Health
Dr Deirdre Mulholland	Departments of Public Health
Ms Deirdre Murphy	HSE Healthcare Pricing Office
Dr Brian Osborne	Irish College of General Practitioners
Dr Cathal O'Keeffe	State Claims Agency
Ms Rosemary Smyth	Mental Health Commission
Ms Margaret Swords	Private Hospitals Association
Ms Mary Wynne	HSE Office of the Nursing and Midwifery Services

Secretariat:

Sarah Treleaven, Patient Safety Surveillance Unit, National Patient Safety Office
Ronan O'Kelly, Statistics and Analytics Unit
Deirdre Hyland, Patient Safety Surveillance Unit, National Patient Safety Office
Jamie Duncan, Clinical Effectiveness Unit, National Patient Safety Office

Appendix 3: Technical Group Members

Ms Rosarie Lynch (Chair)	Patient Safety Surveillance Unit, National Patient Safety Office, Department of Health
Mr Gareth Clifford	HSE Acute Operations
Ms Grainne Cosgrove	HSE Quality Improvement Division
Dr Rob Cunney	Health Protection Surveillance Centre
Ms Jacqui Curly	HSE Healthcare Pricing Office
Ms Fionnola Kelly	National Office of Clinical Audit
Mr Ivan McConkey	HSE Primary Care Reiumbursement Service
Mr Ronan O'Kelly	Statistics and Analytics Unit, Department of Health
Ms Aisling Reidy	Statistics and Analytics Unit, Department of Health
Ms Sarah Treleaven	Patient Safety Surveillance Unit, National Patient Safety Office, Department of Health
Mr PJ Wynne	HSE Community Operations

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