NATIONAL DOCTORS TRAINING & PLANNING

# Dual Training Specialties of Medicine Medical Workforce in Ireland 2024-2038

## An expert stakeholder informed review

HSE
National Doctors Training & Planning

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

INSTITUTE OF MEDICINE
ROYAL COLLEGE OF PHYSICIANS OF IRELAND

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# Foreword

It is my pleasure to welcome the publication of this review of the Higher Specialist Training (HST) requirements for the Dual-Training Specialties of Medicine. The report is a collaboration between National Doctors Training & Planning (NDTP) and the individual clinical programmes, National Specialty Directors and the Institute of Medicine. I would like to thank all of the contributors, without whose input this report could not have been prepared.

The main aim of this report is to recommend the number of Higher Specialist Training places for the next five years. Health care demand is expanding exponentially with population expansion, population ageing and a range of other factors. Our goal is to ensure that the training pipeline is sufficient to meet future demand for consultants.

The report recommends expanding the intake of Higher Specialist Trainees from 81 in 2023 to 117 in 2030. This will result in the total number of HST trainees in these specialties expanding from 408 to 585. The recommendations are based on an assessment of current unmet demand and projected future demand growth for consultants. Current unmet demand for consultants in 9 dual-training specialties is estimated at 24% and ongoing growth in demand is estimated at 2.5% per annum.

The proposed expansion in the number of trainees is contingent on a number of factors including a long term commitment to substantially expand the consultant workforce and sufficient supply of suitable applicants for the programme.

There are substantial data gaps in a number of areas. The report takes a pragmatic approach to addressing these issues. One key challenge is identifying an appropriate staffing level for the Model 3 hospitals relative to the larger Model 4 hubs. The report highlights the substantial differences in consultant staffing on a per capita basis between these two hospitals categories and estimates consultant staffing requirements based on minimum levels.

The inter-related goals of improved patient care, increased doctor retention and value for money can be better achieved through a longer term planned expansion of the health workforce. Our hope is that this report will contribute to the broader discussion on the size and composition of the future medical and health workforce both at a national and regional levels.

**Professor Anthony O'Regan**

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# Executive Summary

The objective of this report is to inform the Higher Specialist Training (HST) intake for the dual training specialties of Medicine. This requires an estimation of projected demand for consultants into the 2030s, as this is when new entrants to HST programmes are expected to take up consultant posts.

The recommended HST intake outlined in this report are contingent on a number of factors that are beyond the scope of this project. These include National and Regional Budget constraints and the availability of a sufficient supply of high quality Basic Specialist Trainees to take up HST training places.

This report covers the nine specialties outlined in Table 1, which each have a separate training programme. Table 1 outlines the proposed HST intake for each of these specialties. The duration of HST for these specialties is 5 or 6 years. In 2023, there were 408 trainees on these programmes; as the intake is increased the overall size of the programme is projected to increase to 595 by 2030.

***Table 1 Proposed HST Intake 2024-2030***

| | Proposed HST Intake | | | | | | |
|---|---|---|---|---|---|---|---|
| **Specialty** | **July 2024** | **July 2025** | **July 2026** | **July 2027** | **July 2028** | **July 2029** | **2030** |
| **Cardiology** | 12 | 15 | 15 | 15 | 15 | 15 | 15 |
| **Clinical Pharmacology & Therapeutics** | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Endocrinology & Diabetes Mellitus** | 12 | 14 | 16 | 16 | 16 | 16 | 16 |
| **Gastroenterology & Hepatology** | 12 | 14 | 14 | 16 | 18 | 18 | 18 |
| **Geriatric Medicine** | 22 | 23 | 25 | 26 | 26 | 26 | 26 |
| **Infectious Diseases** | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| **Nephrology** | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| **Respiratory Medicine** | 15 | 16 | 18 | 18 | 20 | 20 | 20 |
| **Rheumatology** | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| **Total** | **97** | **106** | **112** | **115** | **119** | **119** | **119** |

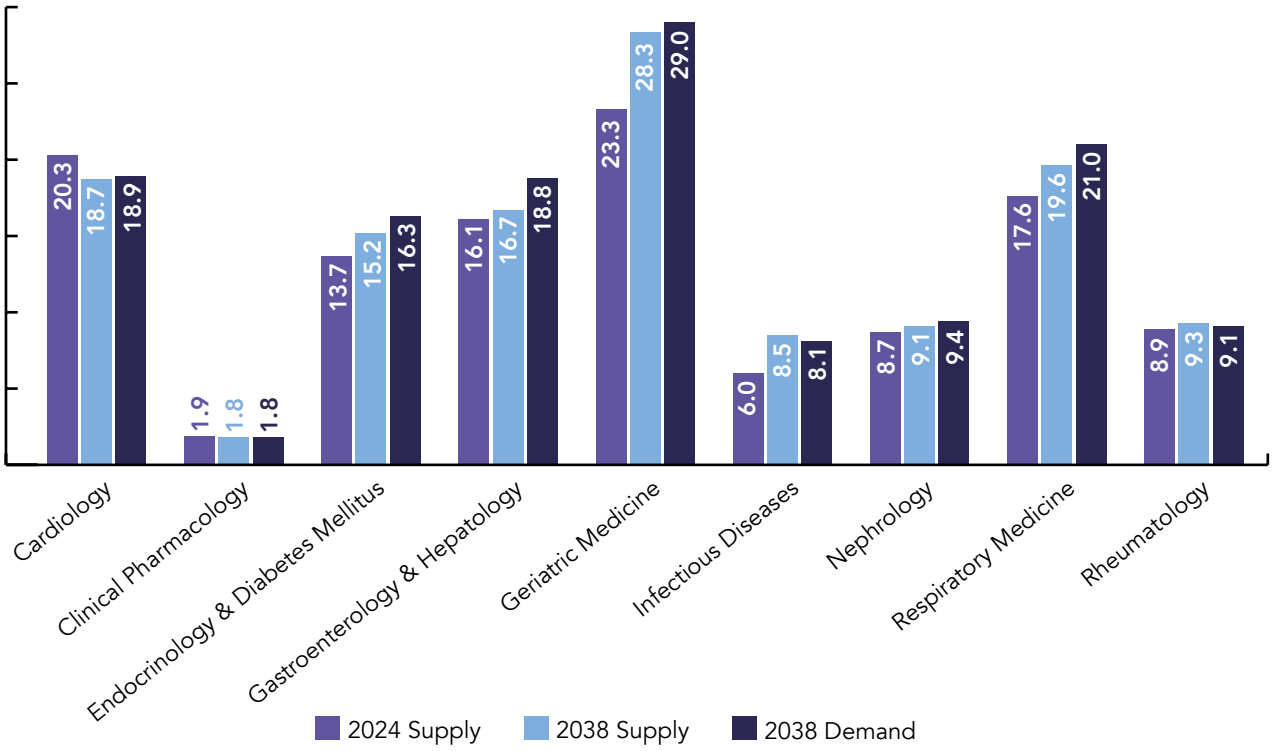
The report includes supply and demand projections to 2038, based on various assumptions. As trainees are expected to go on to work as consultants in both the public and private sectors, projections are based on both sectors combined. Supply projections are based on new consultants being sourced from the domestic training programmes and an assumed level of additional supply from outside the programmes. This latter supply includes doctors from recognised international training programmes and doctors who have achieved medical council registration on the specialist division though a demonstration of competencies. Supply projections also allow for an assumed rate of attrition between exiting the HST training programme and taking up a consultant post in Ireland, exits from consultant posts due to retirements, and growth in less than full time working. The structure of the BST GIM programme, and the proposed introduction of HST programme in general medicine, are currently being explored by the OPTIMISE project [1]. These proposals have not been incorporated into the analysis in this report.

Demand projections are split across two domains – current unmet demand and projected demand growth. A substantial level of current unmet demand for these specialities is evidenced by long waiting lists, emergency department overcrowding and demand for non-acute care such as through the chronic disease management programme. There is also limited geographic coverage in some specialties. An observation that underpins the estimation of unmet demand for a number of specialties is that there are substantially fewer consultants per capita in the geographic areas immediately surrounding the Model 3 hospitals compared to the Model 4 hospitals. There are 73 [Range 48-148] consultants per 100,000 people over 65 years in the Model 3 geographic areas compared to 155 [Range 88-303] in the Model 4 areas. Current unmet demand is estimated at 227 consultants, 24% above current levels.

Various metrics are used in the report to project demand growth, in addition to current unmet demand, for each of the specialities. For the group as a whole demand is projected to grow at a composite rate of 2.5%.

Figure 1 summarises the projected change in consultant numbers per 100,000 people over the age of 65 years. While each area will have a different demographic of users, a large proportion of utilisation for these specialties comes from older cohorts. Overall, the figure shows that the proposed HST intakes are projected to result in the maintenance or small increase of the consultant workforce relative to this population.

***Figure 1 Current workforce, projected workforce and projected demand 2038 per 100,000 over 65 years (WTE)***



# 1. Introduction

## 1.1 Overview of Medical Workforce Planning Within NDTP

The HSE National Doctors Training and Planning (NDTP) Unit operates within the Office of the Chief Clinical Officer and has statutory roles in medical education and training, medical workforce planning, and supports the consultant post approval process.

Under the Medical Practitioners Act 2007, NDTP is tasked with proposing the annual intake number of post-graduate trainees required for each medical specialty. NDTP works with specialty stakeholders including National Clinical Programmes, National Specialty Directors, Postgraduate Training Bodies and others to estimate the training requirements for Consultants and specialists across the Irish healthcare system. This information then feeds into the medical education and training role of NDTP via the commissioning of medical training required to meet workforce needs, ensuring that the training content and delivery is responsive to the changing needs of the Irish healthcare system, and supporting the retention of doctors upon completion of their training.

The approach taken to informing annual intake number of post-graduate trainees required for each medical specialty is broadly based on the following principles as per existing Government policies:

- Alignment with Government policy e.g., Sláintecare (2017), the Health Service Capacity Review (2018), and the Smaller Hospitals Framework (2013).
- Recommendations should be consistent with the WHO Global Code on the International Recruitment of Healthcare Personnel (World Health Organisation, 2010, 2011). The Irish health service should be self-sufficient in the production of medical graduates, eliminating dependence on International Medical Graduates.
- Recommendations should encompass medical workforce requirements for the entire population to include both the public and private healthcare systems.
- Recommendations should incorporate future health needs of the population. Medical Workforce Planning (MWP) recommendations should include the incorporation of projections relating to, for example, demographic changes; alterations in disease incidence and prevalence; models of clinical care; medical and therapeutic innovations; policy initiatives and technological advances.
- Training capacity should match the recommended training numbers. Where recommendations are made to increase the intake of trainees into a particular specialty, additional training posts may be required.

## 1.2 Objective, Contingencies and Scope

The primary objective of this report is to inform the Higher Specialist Training (HST) intake for the dual training specialties of Medicine.

The recommended Higher Specialist Training (HST) intake outlined in this report are contingent on a number of factors that are beyond the scope of this project. The projections outlined in this report are not constrained by budgets, other staffing or building requirements. Further work is required to ensure that the proposed medical staffing is consistent with national and regional budget constraints and with local buildings constraints.

The proposed increases in the HST intake will require sufficient high quality applicants from the Basic Specialist Training (BST) Programme in General Internal Medicine (GIM). This programme currently feeds into a number of expanding programmes, including General Practice, Radiology and Pathology.

The structure of the BST GIM programme, and the proposed introduction of HST programme in general medicine, are currently being explored by the OPTIMISE project [1]. These proposals have not been incorporated into the analysis in this report.

It is important to note that workforce planning is an inexact science and estimated demand, and supply requirements are based on the best available data, expert opinion as well as the policy context. Demand projections are based on the available data, in some cases this is hospital based data. However, service provision may include the increased provision of care in the community, for example through virtual wards or community hubs.

The report identifies differences in consultant staffing ratios between the Model 4 and Model 3 hospitals across the country. This is used to crudely identify a level of unmet demand in the Model 3 geographic areas. However a detailed recommendation of the distribution of staffing and workload is beyond the scope of this report.

Identifying the need for post-CSCST (Certificate of Satisfactory Completion of Specialist Training) training in highly specialised areas within each specialty is also not covered; further work is required to assess the training requirements for highly specialised areas within each specialty. Training for Paediatric consultants who specialise in one of the above areas is though the paediatric training programme. These consultants are not covered in this report.

This report does not explore the impact of advanced clinical practice on consultant demand projections.

### 1.3 Dual Training Specialties of Medicine

This report covers the nine specialties below which each have separate training programmes:

- Cardiology
- Clinical Pharmacology & Therapeutics
- Endocrinology & Diabetes Mellitus
- Gastroenterology & Hepatology
- Geriatric Medicine
- Infectious Diseases
- Nephrology
- Respiratory Medicine
- Rheumatology

The consultants in these specialties are almost exclusively dual-trained in their specialty and in General Internal Medicine (GIM). GIM involves the management of patients with a wide range of common conditions that are typically admitted to hospital through the Emergency Department. Consultants who are dual-trained in these specialties and GIM, also staff the Acute Medical Units (AMU) which have been set up in most hospitals with an emergency department. In recent years few cardiology trainees are dual-trained in GIM, however Cardiologists do contribute to the general medical rota in some Model 3 hospitals. Table 2 gives a brief overview of each of the specialties.

Consultants in the specialties of Cardiology, Endocrinology & Diabetes Mellitus and Respiratory Medicine also contribute to the Integrated Care Programme for the Prevention and Management of Chronic Disease (ICPCD). Similarly, the Integrated Care Programme for Older Persons, has been operationalised and staffed by consultant Geriatricians. Geriatric Medicine is also the core specialty of the Stroke Programme, along with Neurology (not covered here) and Clinical Pharmacology & Therapeutics.

### *Table 2 Specialty Overview*

| |
|---|
| **General Internal Medicine (GIM):** GIM is used in this report to describe a component of the workload of most consultants in the dual-training specialties of Medicine. Consultants from these specialties will be on the general medical on-call rota for the hospital. This is a seven-day rota, thus a 1 in 10 on call will involve being on call approximately 3 days per month. On call rotas can be done in one block in the year or on an ongoing basis. On the morning following admission, patients can be redistributed to the relevant specialty or remain with the admitting consultant. The extent to which patients are re-distributed varies widely, particularly across the Model 3 hospitals. |
| The specialty of **Cardiology** involves the management of patients with suspected or confirmed cardiovascular disease and conditions of the heart, circulation and linked organs associated with diabetes, renal disease or cerebrovascular disease [2]. Most Cardiology trainees are not now dual-trained in General Internal Medicine. |
| **Clinical Pharmacology & Therapeutics** aims to improve the care of patients by promoting the safe and effective use of medicines and to evaluate and introduce new therapies. Clinical Pharmacologists providing specialist and generalist patient care in hospitals and other settings, using their expertise in the use of medicines to improve outcomes and prevent avoidable harm. Clinical Pharmacologists advise on all aspects of medicines policy and management including regulation, health economic assessments, prescribing guidance, and formulary management in order to optimise the clinical and cost-effective use of medicines. |
| The specialty of **Endocrinology and Diabetes Mellitus** deals with the diagnosis and management of a diverse range of hormonal and metabolic disorders. Type 2 diabetes is the most common condition treated along with a wide range of diseases of the endocrine system. Consultant Endocrinologists will also increasingly be involved in the treatment of obesity. Most conditions are chronic, requiring long-term and often lifelong management [2]. |
| The specialty of **Gastroenterology and Hepatology** incorporates care for patients with both benign and malignant disorders of the gastrointestinal (GI) tract and liver. Consultants in **Gastroenterology** provide expertise in diagnosis, treatment and prevention of all forms of digestive tract diseases. Consultants in **Hepatology** oversee the care of patients with all forms of liver disease. Consultants from the specialty of Gastroenterology and Hepatology oversee the endoscopy service (including in some cases an on-call bleeding rota) and the national Bowel screening service. |
| **Geriatric Medicine** is the branch of General Medicine concerned with all aspects of health and illness in older adults. Older people have different patterns of disease presentation compared to younger adults, they respond to treatments and therapies in different ways, and frequently have complex social needs that are related to their chronic medical conditions [2]. Stroke Specialists are normally but not exclusively a Consultant Geriatrician or Neurologist. Those who gain the most benefit from Specialist Geriatrician input are the frail elderly. Frailty often presents as non-specific ill health (e.g. falls, confusion, incontinence and immobility) but can lead to prolonged hospital stays and poorer outcomes [2]. |
| The **Infectious Disease** service provides inpatient infectious diseases consultations, inpatient and outpatient infectious disease care, including for HIV; viral hepatitis; tuberculosis; long Covid; complex skin soft tissue, bone and joint infections; Outpatient Parenteral Antimicrobial Therapy (OPAT) and sexually transmitted infection (STI) clinics, along with the Genito-Urinary Medicine. Due to the nature of the specialty, there are disproportionate numbers of vulnerable patients, such as asylum seekers and recent immigrants, the homeless, prisoners, intravenous drug users and visitors from the tropics. |
| **Nephrology** involves the care of patients with all forms of kidney disease. Major components of the service are the management of patients with acute kidney injury or advanced chronic kidney disease (CKD). Renal physicians provide care for patients with kidney diseases without impairment of excretory kidney function, including proteinuria and nephrotic syndrome, kidney involvement in multisystem immune diseases such as systemic lupus erythematosus and vasculitis [2]. |
| **Respiratory Medicine** is concerned with the diagnosis, treatment and continuing care of children and adults of all ages with a wide range of respiratory and related conditions [2]. These conditions include airway diseases (such as asthma and COPD); pulmonary vascular disease; Interstitial lung disease (ILD); sleep related breathing disorders; lung cancer; diffuse parenchymal lung disease; infection (including cystic fibrosis, bronchiectasis, tuberculosis); end-of-life care; and public health. |
| **Rheumatology** deals with the investigation, diagnosis and management of patients with arthritis and other musculoskeletal conditions. This incorporates a wide range of disorders affecting joints, bones, muscles and soft tissues, including inflammatory arthritis and other systemic autoimmune disorders, vasculitis, soft-tissue conditions, spinal pain and metabolic bone disease [2]. Rheumatology is primarily an outpatient-based specialty. |

### 1.4 Training Pathways

Following internship trainees who wish to pursue a career in Medicine go on to the Basic Specialist Training (BST) programme in General Internal Medicine (GIM). This is a hospital-based training programme, completed in Senior House Officer (SHO) posts. BST usually takes two years.

The Royal College of Physicians in Ireland (RCPI) provide HST programmes for all the specialities of Medicine. In addition to supervised training in the hospital, the attendance of courses and study days are mandatory to acquire the non-clinical skills and general medical professional knowledge necessary. The HST training programmes covered in this report typically include further GIM training, which is completed in the first 3 years of any dual-training programme. One of these years is a GIM specific year. During the other 2 years trainees must complete their GIM training as per the minimum requirements.

Following satisfactory completion of training, the Certificate of Satisfactory Completion of Specialist Training (CSCST) is awarded. Once a CSCST is awarded the graduate is allowed entry into the Specialist Division of the Medical Council register and is eligible to apply for a Consultant post. In addition to the recognised training programmes a doctor is allowed entry into the Specialist Division of the Medical Council register by assessment of experience. This is done through an application to the Medical Council where a candidates experience is assessed against the specialty curriculum.

There is currently no higher specialty training programme dedicated solely to General Internal Medicine. A previous programme, active between 2007 and 2010, was discontinued. A recent review of internal medicine training by the Institute of Medicine, recommended increasing the duration of initial internal medicine training from 2 to 3 years and changing the name from BST Medicine to stage 1 Internal medicine training. The second stage of internal medicine would be concentrated into a four year specialty training programme that would no longer involve stepping out of specialty for a year. The OPTIMISE review also recommended that there should be a strong consideration of establishing a HST programme specialising in GIM [3].

# 2. Methods

## 2.1 Collaborative Approach

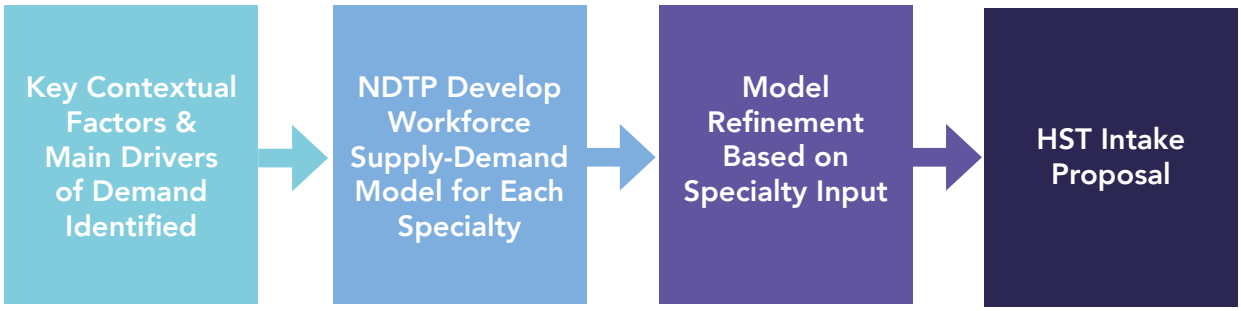
The approach to medical workforce planning for the specialties of medicine is based on the methodological framework 'NDTP Health Workforce Planning, Ireland: A Simple Stepwise Approach' (HSE NDTP, 2016).

Figure 2 below outlines the process through which the workforce plans for each specialty were developed. This process involved active engagement with representatives of each specialty to develop a workforce plan. Specialty representatives (National Clinical Programmes and National Specialty Directors), provided contextual information for their specialty, identified demand drivers and identified the level of trainee intake that was achievable to meet projected demand.

NDTP constructed supply-demand models for each specialty, provided data and assumptions on the stocks and flows of trainees and consultants, and assisted and coordinated the writing of the report using the information provided by each specialty.

This project was supported by the Centre for Health Policy and Management in Trinity College Dublin.

***Figure 2 Process of engagement between NDTP and specialty stakeholders***




## 2.2 Data Used and Limitations

**DIME**

The data utilised in the analysis of the medical workforce in each speciality are drawn from multiple sources. For the purpose of this report, the Doctors Integrated Management E-System (DIME) is the main source of data in establishing the baseline medical workforce statistics in conjunction with data from the training bodies. DIME workforce data was accessed in May 2023.

DIME records specialty based on post titles. While most posts have a special interest area some consultants occupy General Physician posts with specified no special interest. In practice, many of these consultants have trained in a specialty area; these consultants are allocated to a specialty based on their Medical Council registration. The remaining consultants without a medical council specialty area are allocated to a specialty proportionality to the size of the specialty. The DIME database does not record consultants who work solely in the private sector. Data on the number of private only consultants is sourced from the Irish Medical Council.

NDTP recently published its inaugural retention report which looked at the proportion of qualified specialists who went on to take up consultant posts in the public and private sectors in Ireland in subsequent years. This data was used as a basis for informing projected retention rates.

Internal NDTP analysis of the number of newly hired permanent consultants between 2021 and 2023 is used to inform the capacity to hire new consultants from outside the domestic Higher Specialist Training programmes. This group comprises Category B to E medical council registrations. This includes doctors from recognised international training programmes and doctors that demonstrate the necessary competencies to allow admission to the specialist reregister but had not trained on a recognised training programme.

**HIPE**

The age profile of emergency admittances is derived from HIPE data for 2023. A limitation of HIPE, for the purposes of this project, is that the majority of emergency admissions for the dual-training specialties are recorded with a specialty of discharge of General Medicine. While this is correct, as they are typically Consultant General Physicians with a special interest area, it does not allow for the area of consultant specialisation to be identified in a large number of cases. For this reason, where the age profile of HIPE episodes is used to estimate demographic ageing, this is based on all emergency episodes from the dual training specialties.

A metric of adjusted bed days is used as the growth driver for a number of specialties. The rationale for this is that older patients have more complex care requirements and a longer length of stay in hospital. However, the consultant input into this care is concentrated in the early stages in a patients stay in hospital. To account for these factors an adjusted length of stay metric was created for each age cohort where the maximum length of stay is capped at 3 days. The resulting growth drivers based on the adjusted bed days metric account for the increasingly complex care of older age groups.

**Population Data**

The population in the surrounding area of an acute site (Model 3 or Model 4) is used for the purposes of estimating sites per capita supply of Consultants. Population estimates are based on the mid-point between sites. Thus they do not account for the broader population that are provided tertiary care in the Model 4 sites. This data is sourced from Health Atlas Ireland, developed by the Health Intelligence Unit. These projections for 2023 are based on the 2016 census. Population growth projections are based on the M2 population projection from the 2022 census.

## 2.3 Supply-Demand Model Overview

A model was developed for each specialty comprising of supply and demand modules. The workforce was modelled from 2023 to 2038. The chosen time frame is important, particularly in specialties where there is a large gap between current supply and current demand. Due to the extensive training period (typically 5-8 years) between entering HST and taking up a Consultant post, large increases in the HST intake will only impact on Consultant numbers in the later years of the model.

### 2.3.1 Supply Model

As the main focus of the report is on informing the HST intake, a national approach to workforce planning is primarily taken. A stock-flow supply model with a standardised structure for all specialties, was used to project the number of HST and consultants over the 15-year modelling period. An overview of the supply model is shown in Figure 3.

The supply model includes both public and private sectors; this is done as a small proportion of the graduates of post-graduate training programmes will go on to work exclusively in the private sector. In the model, the public and private sectors are combined at the outset with projections based on the combined pool.

The model includes an adjustment to account for increased less than full time working. An assumption is made that each year the aggregate Whole Time Equivalent rate falls with increased less than full time working.

By necessity the modelling of consultant supply has been done at a minimum level of complexity. The new Public Only Consultants Contract (POCC) may impact service provision in a number of ways. As the Consultant workforce progresses to public only contracts and the old public/private sector contracts expire, there should be a substantial uplift in the commitment to the public sector. While the POCC maintains the overall working week at 37 hours it does not allow for rostered overtime, for example at weekends. This may result in the consultant being rostered to work at weekends as part of their 37 hour week and reducing their availability on weekdays. Thus a consequence of the introduction of rostered weekend work, and the extended working day, may be a reduction in weekly hours worked on some sites and specialties. There is currently limited evidence that there has been widespread implementation of new rostering scope under the POCC contract.

***Figure 3 Supply model diagram***

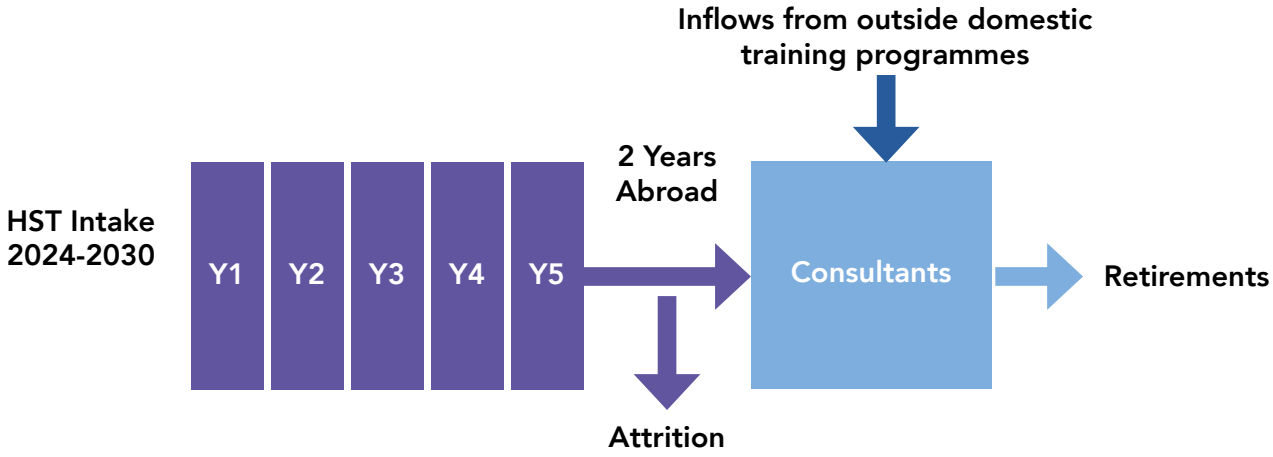



Table 3 below summarises the assumptions of the supply module of the model. A full listing of parameter values by specialty is shown in Appendix 1. Model parameters for the supply model were derived from internal NDTP research, current values and expert opinion.

***Table 3 Supply model parameter values and sources***

| Parameter | Value/Range | Description |
|---|---|---|
| **CSCST Retention Rate** | 70-89% | This is the proportion of CSCSTs that are retained in the Irish Health System. This is based on analysis by NDTP of the rates of retention after 5 years and expert judgement on future prospects. |
| **Inflows of New Consultants that did not CSCST in Ireland** | 0-3 Consultants per annum | This is the number of new consultants that take up a post in Ireland per year that did not complete training in an Irish training scheme. This was estimated from 2021-2023 based on DIME and CSCST lists. |
| **Years Abroad Between CSCST and Consultants Post** | 2 years | Many consultants go abroad post CSCST for a fellowship. Additional year's abroad pre-CSCST were not accounted for. |
| **Projected Decline in WTE Rate of Consultants** | 0.0025 WTE per annum | It is widely believed that new consultants will not want to work as many hours as in the past. The variable is included in the model to account for a 0.025 decline in WTE rates over 10 years due to increased Less Than Full Time (LTFT) work. |
| **Retirement Age** | 65 years | For simplicity, the model assumes that people retire at a certain age depending on the specialty. For most specialties a retirement age of 65 is used. |
| **Exit Rates Private Sector** | 2.6% | No age data is available for the private sector only consultants, an average exit rate is used (Source: NDTP internal analysis). |
| **Additional Exits (Under 55 Years)** | 0.6% | Exits from workforce of consultants under 55 years (Source: NDTP internal analysis). |

### 2.3.2 Demand Model

The approach taken to modelling demand is to estimate the current unmet demand and then to expand demand growth based on demographic or epidemiological changes.

A distinct set of demand drivers was developed for each specialty. This is due to both the differences in the specialties, and the process of engagement with the Clinical Programmes and National Specialty Director. By necessity, the modelled drivers of demand need to be high level to avoid overly complex modelling. Where there are clearly distinct sub groups within specialty areas, with potentially different growth profiles, these areas are modelled separately.

The demand for General Internal Medicine is particularly difficult to quantify. A review of smaller hospitals in England, found that the differences in case mix between hospitals were relatively small, with 65–70% of episodes accounted for by 20 case types; the majority of this work was viewed by expert consensus to be 'generalist' in nature [4]. The same study found that across 48 smaller hospitals 25 different models of care were in operation with no single model used by more than four hospitals [4]. An analysis of admissions from 4 hospital (two model 4 and one model 3) in Ireland by Garrihy et al in 2014 showed similar results and was used to inform the GIM curriculum in the RCPI. The model of care each site employs will partially determine the degree of specialism in the hospital.

In the UK, the Royal College of Physicians have proposed safe medical staffing guidelines for various medical grades, including consultants. These proposals estimate the minimum hours consultants need to be available on wards [5]. However, this does not include elective and outpatient activity. The approach taken to modelling GIM in this report is to acknowledge that it comprises a large part of Emergency Admission Inpatient Episodes, for which there is data.

# 3. Medical Workforce

## 3.1 NCHD Workforce

The distribution of trainees for the 2024-2025 training year are presented in Table 4. The figures incorporate a small number of trainees who are repeating a year of training for various reasons e.g., maternity leave, completing examination requirements. There are 578 trainees on the BST training programme. A substantial proportion of these will go on to other specialties of Medicine, Radiology, Pathology and GP training programmes [6]. There are a total of 460 on the Higher Specialist Training Programme and 1162 Non-Training Scheme Doctors (NTSD). Almost half of the NTSD group work in general medical posts.

***Table 4 NCHDs by specialty and training stage and year (PGTB, Headcount)***

| Specialty (Headcount) | BST GIM | HST | | | | | | | Non-Training Scheme | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Sub-Total HST | | |
| Cardiology | | 12 | 11 | 12 | 13 | 8 | 9 | 65 | | |
| Clinical Pharmacology& Therapeutics | | 2 | - | 2 | 1 | 1 | - | 6 | | |
| Endocrinology & Diabetes Mellitus | | 12 | 7 | 7 | 6 | 12 | - | 44 | | |
| Gastroenterology & Hepatology | | 12 | 11 | 11 | 12 | 15 | - | 61 | | |
| General Medicine | | | | | | | | | | |
| Geriatric Medicine | | 22 | 16 | 19 | 19 | 26 | - | 102 | | |
| Infectious Diseases | | 6 | 7 | 10 | 9 | 9 | - | 41 | | |
| Nephrology | | 8 | 6 | 6 | 6 | 12 | - | 38 | | |
| Respiratory Medicine | | 15 | 14 | 14 | 13 | 15 | - | 71 | | |
| Rheumatology | | 8 | 8 | 6 | 5 | 5 | - | 32 | | |
| **Total** | **578** | **97** | **80** | **87** | **84** | **103** | **9** | **460** | **1162** | **2200** |

For Nephrology, Out of Clinical Programme Experience (OCPE) is typically taken in Year 4 and the average trainee spends 2 to 3 years in a block of OPCE, hence the higher numbers in Year 4 on the table. In 2023-2024 there were 10 trainees in OCPE in Nephrology. Nephrology is unique as it has two mandatory years, one High Intensity GIM year and one High Intensity Nephrology year. The High Intensity Nephrology year is currently only available in Beaumont with a maximum 7 training slots per year.

## 3.2 Consultant Workforce

### 3.2.1 Characteristics of Consultant Workforce

Table 5 shows descriptive statistics for the current public consultant workforce in headcount (HC), whole time equivalent (WTE), employment status and age, as of May 2024 as recorded on DIME.

***Table 5 Public Consultant Workforce Headcount and WTE (May 2024)***

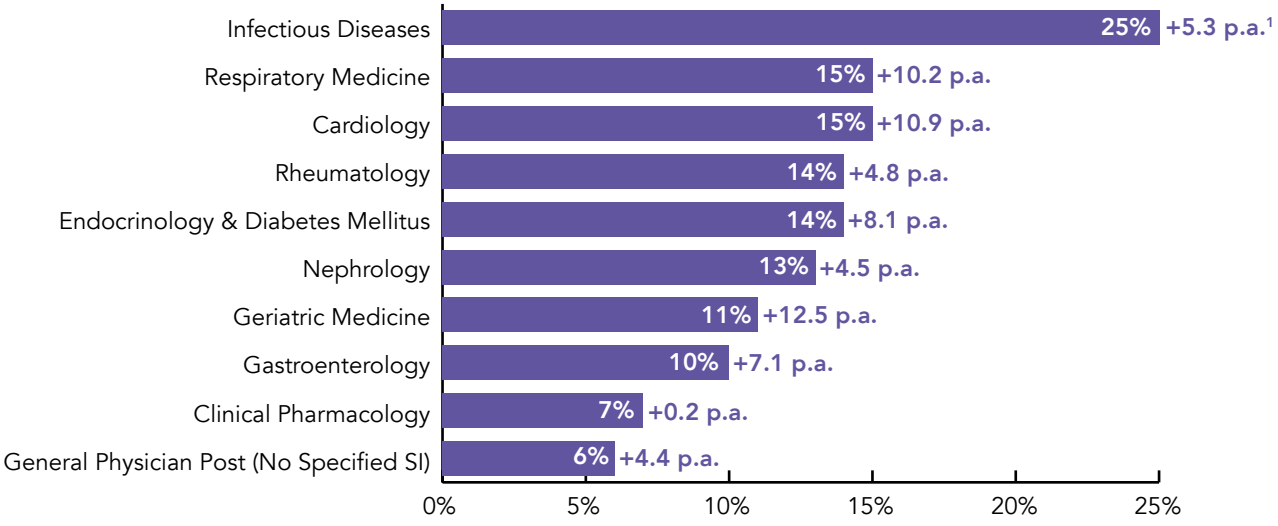
| Specialty | HC | WTE | WTE Rate[2] |
|---|---|---|---|
| **Cardiology** | 134 | 126.2 | 0.94 |
| **Clinical Pharmacology & Therapeutics[1]** | 9 | 8.9 | 0.89 |
| **Endocrinology & Diabetes Mellitus** | 102 | 99.3 | 0.97 |
| **Gastroenterology & Hepatology** | 115 | 108.7 | 0.94 |
| **General Medicine** | 26 | 25.3 | 0.97 |
| **Geriatric Medicine** | 191 | 178.8 | 0.94 |
| **Infectious Diseases** | 51 | 45.2 | 0.89 |
| **Nephrology** | 73 | 65.6 | 0.90 |
| **Respiratory Medicine** | 135 | 124.6 | 0.92 |
| **Rheumatology** | 64 | 58.3 | 0.91 |
| **Total/Average** | **900** | **840.8** | **0.93** |

*Note 1: Includes Consultants in General Physician and Geriatric Medicine Post.*
*Note 2: Note 2: WTE divided by Headcount*

### 3.2.2 Change in Consultant Workforce 2019-2024 by Specialty

The number of consultants in the specialties of Medicine has been expanding rapidly in recent years, at an average rate of 11% per year. Figure 4 below illustrates the annual growth rate per specialty and the additional WTE per year. While there has been the biggest percentage increase in Infectious Disease consultants, this was from a low base and in the context of a global pandemic. Over the period, there were an additional 22 WTE consultants employed in posts without a specified specialty or special interest, i.e. with a post title of "Consultant Physician".

***Figure 4 Public Consultant workforce annual growth rate by post specialty or special interest 2019-2024***




*Note 1: Annual increase in consultants*

Between 2019 and 2024, an additional 206 consultants were employed in the dual-training specialties in Model 4 hospitals. In the same period 122 additional consultants were employed in Model 3 hospitals. Table 6 below illustrates the growth in consultants employed by hospital model.

***Table 6 Public Consultant workforce by hospital model 2019-2023***

| Model | 2019 | 2020 | 2021 | 2022 | 2023 | Q2 2024 | Difference in 2019-2024 | Average Annual Growth |
|---|---|---|---|---|---|---|---|---|
| **Model 4** | 341 | 372 | 406 | 469 | 530 | 547 | 206 | 11% |
| **Model 3** | 177 | 193 | 210 | 214 | 279 | 299 | 122 | 12% |
| **Model 2** | 35 | 37 | 39 | 43 | 42 | 44 | 9 | 5% |
| **Other** | 6 | 6 | 8 | 7 | 9 | 10 | 4 | 12% |
| **Total** | **559** | **608** | **663** | **733** | **860** | **900** | **341** | **11%** |

### 3.2.3 The Number of Specialists Working Exclusively in the Private Sector

Table 7 shows the number of consultants listed on the Medical Council register as working exclusively in the private sector. This data may include consultants who are not currently practicing in Ireland. Consultants who work partially in the public and private sectors are included in the DIME data in Table 5. Data for Clinical Pharmacology & Therapeutics includes regulatory agencies, academic only and the private sector.

***Table 7 Private Only Consultants***

| Specialty | WTE (Estimated) |
|---|---|
| **Cardiology** | 37.9 |
| **Clinical Pharmacology & Therapeutics** | 6.0 |
| **Endocrinology & Diabetes Mellitus** | 7.1 |
| **Gastroenterology & Hepatology** | 16.6 |
| **Geriatric Medicine** | 4.3 |
| **General Medicine** | 1.0 |
| **Infectious Diseases** | 1.0 |
| **Nephrology** | 2.0 |
| **Respiratory Medicine** | 12.0 |
| **Rheumatology** | 11.4 |
| **Total** | **99.3** |

### 3.2.5 Vacant Posts

A vacant post is a post that has been approved by the Consultant Applications Advisory Committee (CAAC) but is currently unfilled. The vacancy figures shown include a combination of vacant posts that have previously been filled and have now become vacant, and posts that have never been filled. Recruitment may be underway, or an appointment may have been made to a number of these vacancies with a prospective start date. There is often a significant period between approval of a consultant post through the CAAC process to the commencement of the recruitment process and ultimately the recruitment of a consultant to a post.

There were 79 vacant posts on DIME in May 2024 across the specialties, shown in Table 8. Of these, 25 had been vacant for over 18 months. However, 12 of the 25 posts vacant for more than 18 months have a specified future start date and are waiting for the consultant to take up the post. Table 9 shows the number of unfilled posts by specialty and hospital model. 40% of unfilled posts are in Model 3 or Model 2 hospitals. There are likely to be a wide range of factors that will influence the attractiveness of consultant posts including: hospital model, geography and department size.

***Table 8 Unfilled posts by specialty and duration (May 2024)***

| Specialty | Post Unfilled <18 Months | Post Unfilled >18 Months | Total |
|---|---|---|---|
| **Cardiology** | 4 | 5 | **9** |
| **Clinical Pharmacology & Therapeutics** | 1 | 0 | **1** |
| **Endocrinology & Diabetes Mellitus** | 10 | 4 | **14** |
| **Gastroenterology & Hepatology** | 2 | 1 | **3** |
| **General Medicine** | 5 | 0 | **5** |
| **Geriatric Medicine** | 16 | 7 | **23** |
| **Infectious Diseases** | 1 | 1 | **2** |
| **Nephrology** | 2 | 1 | **3** |
| **Respiratory Medicine** | 8 | 6 | **14** |
| **Rheumatology** | 5 | 0 | **5** |
| **Total** | **54** | **25** | **79** |

***Table 9 Unfilled posts greater than 18 Months with no future start date by specialty and hospital model***

| Specialty | Model 4 | Model 3 | Model 2 | Other | Total |
|---|---|---|---|---|---|
| **Cardiology** | 4 | 1 | 0 | 0 | **5** |
| **Endocrinology & Diabetes Mellitus** | 3 | 1 | 0 | 0 | **4** |
| **Gastroenterology & Hepatology** | 1 | 0 | 0 | 0 | **1** |
| **Geriatric Medicine** | 4 | 2 | 0 | 1 | **7** |
| **Infectious Diseases** | 1 | 0 | 0 | 0 | **1** |
| **Nephrology** | 1 | 0 | 0 | 0 | **1** |
| **Respiratory Medicine** | 0 | 5 | 1 | 0 | **6** |
| **Total** | **14** | **9** | **1** | **1** | **25** |

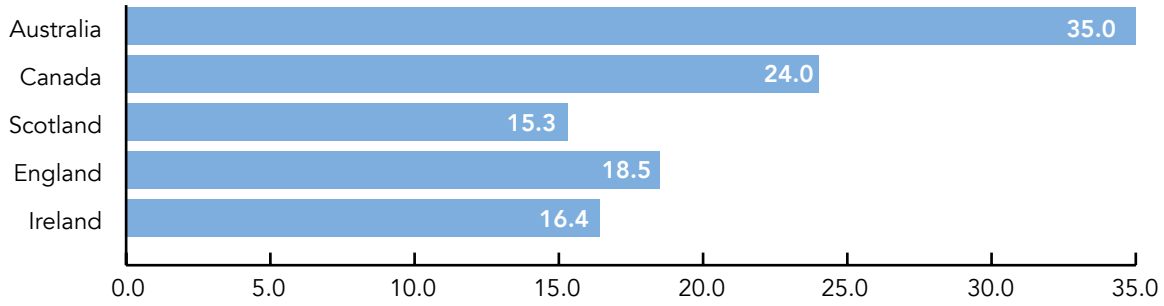
### 3.2.6 International Comparisons

In determining the appropriate demand for Consultant Physicians in Ireland, one approach is to look at how Ireland compares with other countries. Despite the value of international comparisons, there are a range of reasons why it is difficult to make meaningful comparisons across countries. For example, differences in data collection method i.e. employment vs registration data, the availability of data on the private sector, different commitments to general medicine and differences in the scope of a specialty and country demographic profiles. There are also significant differences between countries in relation to other professional and support staff involved in providing services, IT infrastructure to support effective communication, and accreditation requirements. The development of specialised nursing and advanced nursing practice will also impact significantly.
The UK is a frequent comparator due to similarities in the health systems and the number of Irish doctors that are working in the NHS. However, the UK is more demographically advanced.

In Ireland in 2023, 15.6% of the population are over 65 years of age, in comparison to 18.6% of the population of the UK are over the aged of 65; the difference is equivalent to an additional 180,000 people over the age of 65 in Ireland The proportion of the population in Ireland over 65 years, is projected to be 18.5% in 2031 as the population ages. It is estimated that UK spending on healthcare will have to rise by an annual average 3.3% just to maintain NHS provision at current levels [7].

The workforce for the physicians covered in this report per 100,000 for selected countries are shown in Figure 5. This data indicates that the overall number of general medicine consultants in Ireland is in line with England and Scotland but substantially below Canada and Australia.

***Figure 5 Comparison of Ireland with international jurisdictions: WTE ratio per 100,000 of the general population***




*Data is displayed in headcount (WTE). Data for Canada and Australia has been converted from headcount to whole time equivalent (WTE), using the average Irish WTE rate. Irish data includes public and private consultants, England & Scotland is NHS public only, Australia and Canada figures are taken from the medical board register and does not specify public/private.*

*Data Sources:*
*Ireland: DIME (public) and IMC private figures, Census of Population 2022 preliminary results [8]*
*England: NHS Workforce Statistics October 2023 [9] Census of Population 2021 [10]*
*Scotland : NHS Scotland Workforce Statistics June 2021 [11] Census estimated population mid 2021 [12]*
*Australia: Medical board of Australia registration data 2023 [13] Census Australia 2021[14]*
*Canada: Canadian institute for health information. Supply, Distribution and Migration of Physicians in Canada, 2021 [15] Census of Canada [16]*

## 3.3 Geographic Distribution of Consultant Workforce

### 3.3.1 Ratio of Consultants to Population in Model 3 & Model 4 Hospitals

Ireland's population density is relatively low with many smaller hospitals servicing regional areas. The population served by each hospital varies substantially. The Model 4 hospitals population within their immediate catchment areas ranges from 120,000 to 381,000. In addition, these hospitals provide tertiary care for a broader population. Model 3 hospitals populations vary from 87,000 to 278,000. This suggests that each site will have a different staffing requirement.

To compare the allocation of the consultant workforce across hospital models, the number of consultants in each Model 3 and Model 4 hospital was compared to the number of people in the geographic area surrounding each hospital. Consultants based in Model 2 hospitals or community posts are allocated to the nearest Model 3 or Model 4 hospital. Consultants recorded as General Medicine Consultants without a special interest are reallocated evenly across Endocrinology & Diabetes Mellitus, Gastroenterology, Geriatric Medicine, and Respiratory Medicine. Geographic area populations are from population projections for 2023 (based on the 2016 census) and mid-point distances between hospitals.

The specialties of Cardiology, Endocrinology & Diabetes Mellitus, Gastroenterology, Geriatric Medicine, and Respiratory Medicine are provided across the acute hospital network. Table 10 shows that for these specialties the workforce per capita is substantially higher in Model 4 hospitals. It is to be expected that there would be higher staffing ratios per capita in Model 4 hospitals due to a higher level of complex cases and additional service provision. However, there are likely to be substantial advantages to increasing the staffing in the Model 3 Hospitals. These include making Model 3 hospitals more attractive places to work and reducing the distances patients travel for elective and outpatient appointments.

The specialties of Infectious Diseases, Nephrology and Rheumatology are currently primarily carried out in Model 4 hospitals as well as several centres in Model 3 hospitals. Clinical Pharmacology & Therapeutics is currently split between clinical and academic/other posts.

***Table 10 Adjusted Consultant posts per 100,000 by hospital model***

| Specialty | Model 4 | Model 3 | National Average |
|---|---|---|---|
| **Cardiology** | 3.4 | 1.8 | 2.5 |
| **Clinical Pharmacology & Therapeutics** | 0.4 | 0.0 | 0.2 |
| **Endocrinology & Diabetes Mellitus** | 2.6 | 1.8 | 2.1 |
| **Gastroenterology & Hepatology** | 3.0 | 1.3 | 2.1 |
| **Geriatric Medicine** | 5.0 | 2.8 | 3.7 |
| **Infectious Diseases** | 1.7 | 0.2 | 0.9 |
| **Nephrology** | 2.1 | 0.5 | 1.3 |
| **Respiratory Medicine** | 3.5 | 1.8 | 2.6 |
| **Rheumatology** | 1.8 | 0.6 | 1.2 |
| **Total** | **24.0** | **11.5** | **17.1** |

### 3.3.3 Ratio of Consultants to Population by Health Region

Table 11 shows the ratio of consultant posts per 100,000 people by Health Region. The table highlights the lower staffing level per capita in the Mid-West region. Particularly in the specialties of Endocrinology & Diabetes Mellitus, Gastroenterology, Respiratory and Geriatric medicine.

***Table 11 Adjusted Consultant Posts per 100,000 by Health Region***

| Specialty | HSE Dublin & North East | HSE Dublin & Midlands | HSE Dublin & South East | HSE South West | HSE Mid West | HSE West & North West | National Average |
|---|---|---|---|---|---|---|---|
| **Cardiology** | 3.0 | 2.4 | 2.1 | 2.2 | 2.1 | 2.9 | 2.5 |
| **Clinical Pharmacology & Therapeutics** | 0.2 | 0.3 | 0.0 | 0.1 | 0.2 | 0.3 | 0.2 |
| **Endocrinology & Diabetes Mellitus** | 2.1 | 2.0 | 2.1 | 1.7 | 1.4 | 3.1 | 2.1 |
| **Gastroenterology & Hepatology** | 2.1 | 2.0 | 2.3 | 2.1 | 1.4 | 2.3 | 2.1 |
| **General Medicine**[1] | 0.6 | 0.1 | 0.5 | 0.8 | 0.7 | 1.0 | 0.6 |
| **Geriatric Medicine** | 3.6 | 4.0 | 3.3 | 4.5 | 2.8 | 3.8 | 3.7 |
| **Infectious Diseases** | 1.4 | 0.9 | 0.6 | 0.7 | 0.7 | 0.7 | 0.9 |
| **Nephrology** | 1.4 | 1.1 | 1.1 | 1.2 | 1.2 | 1.8 | 1.3 |
| **Respiratory Medicine** | 3.1 | 2.5 | 2.5 | 2.4 | 1.2 | 2.9 | 2.6 |
| **Rheumatology** | 1.1 | 1.3 | 1.0 | 1.1 | 1.2 | 1.4 | 1.2 |
| **Total** | **18.6** | **16.6** | **15.6** | **16.7** | **13.0** | **20.1** | **17.1** |

[1] *General Medicine Posts with No Special Interest or Specialty of training on IMC*

# 4. Public Sector Activity and Waiting Lists

## 4.1 Public Sector Activity

Table 12 summarises the emergency inpatient activity records by specialty of discharge for the 12 months prior to August 2023. Interpretation of the data on the specialty of discharge of emergency admissions is complicated by the way in which the data is entered; the largest category of emergency admissions has a specialty of discharge of "General Medicine". This is likely to include all of the dual training specialties. Therefore, it is not possible to differentiate between the size and age profile of discharges by each of the specialties. The age profile of the overall cohort of emergency admissions cohort is used in the modelling to project demographic based future demand growth. There are no records for Clinical Pharmacology & Therapeutics as these are included under other categories.

Elective and Outpatient activity by specialty is shown in Appendix 3. Activity data is difficult to interpret and link to training requirements due to limitations of the data and differences in the duration of activity across specialties.

***Table 12 Emergency Episodes by Specialty of Discharge (2023)***

| Specialty | Emergency Episodes |
|---|---|
| **Cardiology** | 19,528 |
| **Clinical Pharmacology & Therapeutics** | See Text |
| **Endocrinology & Diabetes Mellitus** | 15,638 |
| **Gastroenterology & Hepatology** | 14,474 |
| **General Medicine** | 170,489 |
| **Geriatric Medicine** | 22,307 |
| **Infectious Diseases** | 4,536 |
| **Nephrology** | 8,513 |
| **Respiratory Medicine** | 17,180 |
| **Rheumatology** | 5,716 |
| **Total** | **278,404** |

Figure 6 shows the distribution of these emergency admissions by primary diagnosis group. Emergency admissions are a key driver of demand for general medical care.

***Figure 6 Emergency admissions by diagnostic group (2023)***

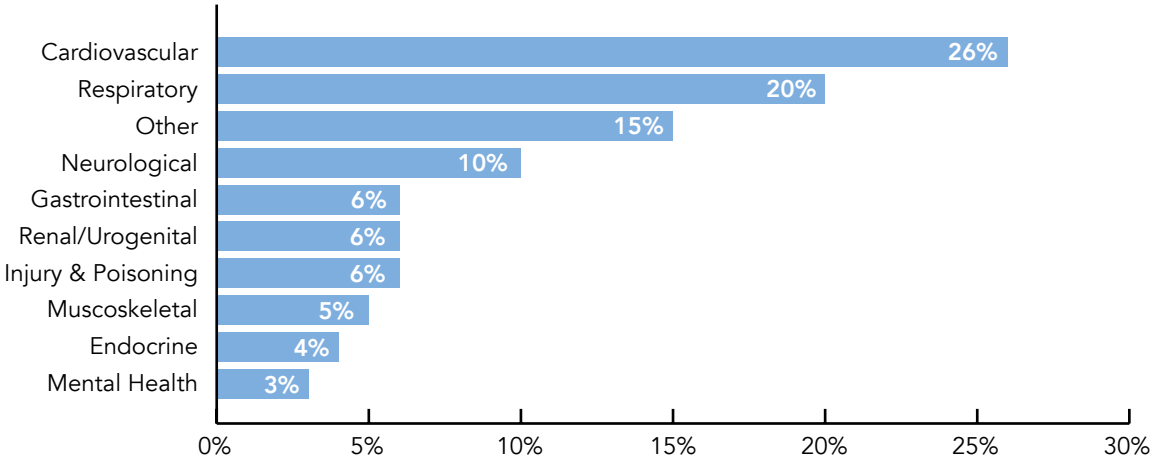
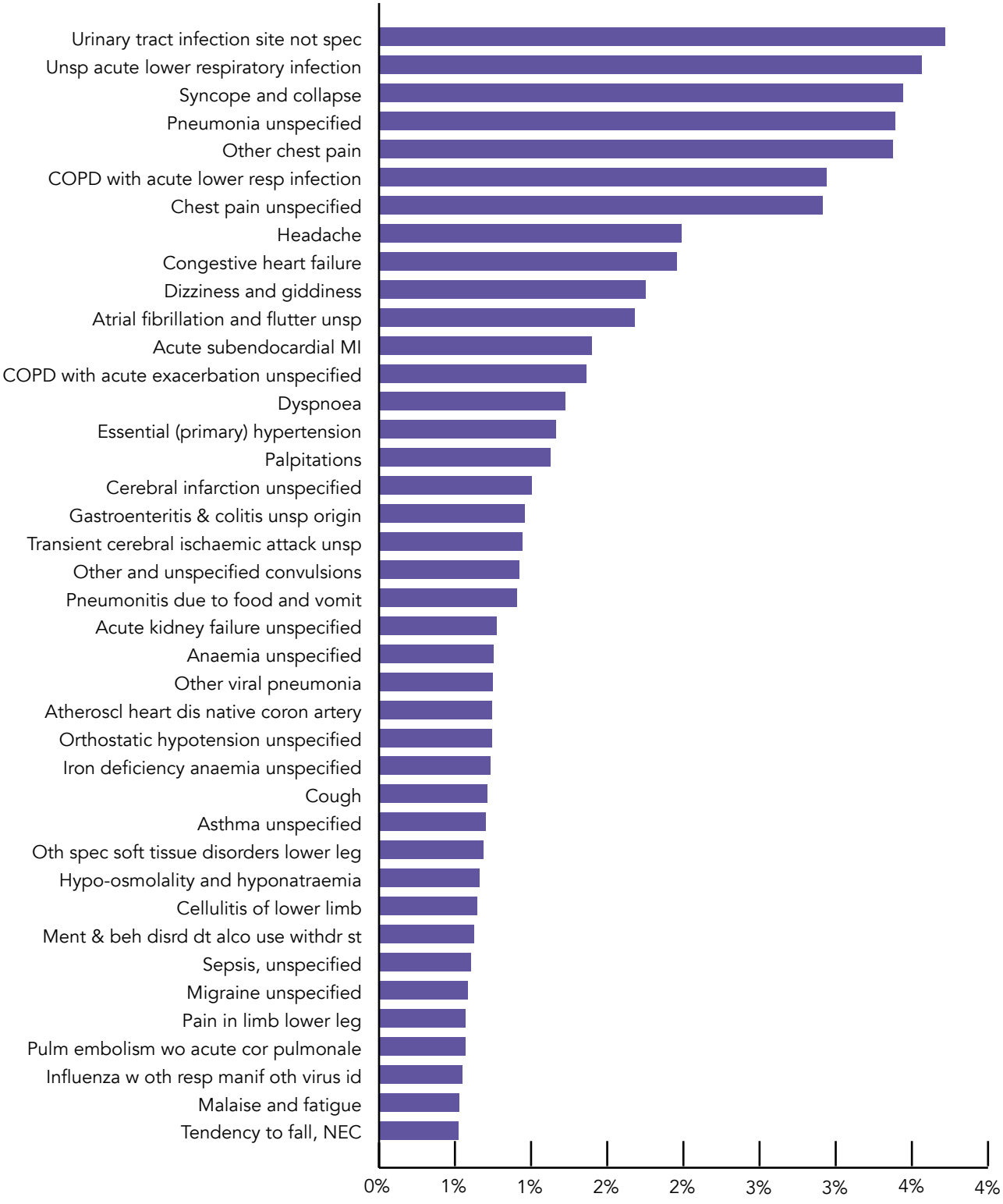


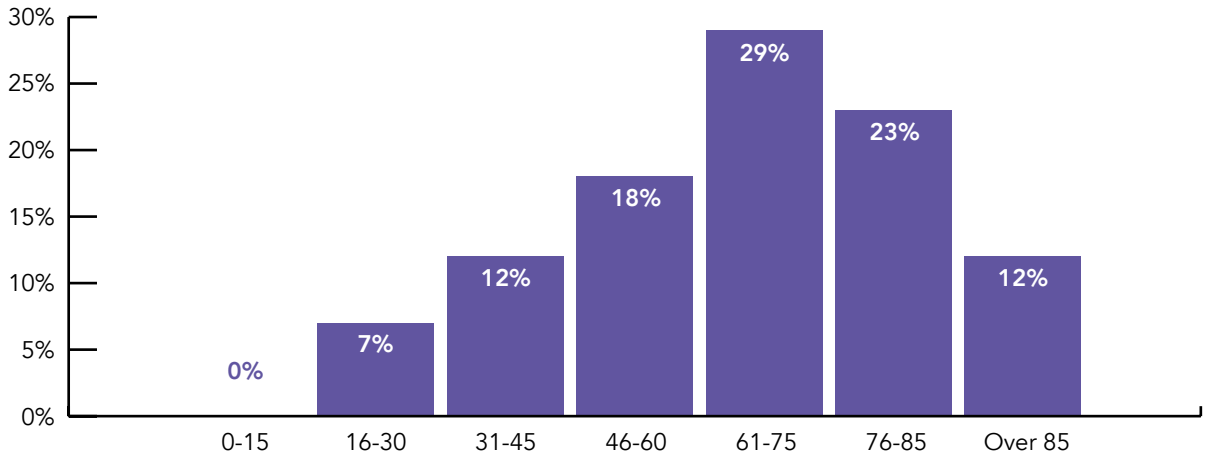
Figure 7 shows the emergency admissions by primary diagnosis International Classification of Diseases (ICD) name. The 40 primary diagnosis represent 55% of all emergency admission episodes for these specialties. The table highlights the frequency of conditions/symptoms such as nonspecific chest pain, COPD & Bronchiectasis and Pneumonia. Many of the most frequent presentations that are admitted to hospital will not require specialist input and can be treated by a GIM trained Consultant [4].

***Figure 7 Emergency admissions by diagnostic ICD name – top 40 (2023)***



The age profile of emergency admissions is shown in Figure 8, 55% of emergency admissions are over the age of 65 and 35% are over the age of 75. This latter group will have a higher prevalence of frailty and a longer length of stay resulting in increased consultant workload. Currently measures of frailty are not recorded on HIPE although work is underway to develop these.

***Figure 8 Age Profile of Emergency admissions (2023)***




Between 2017 and 2023 the number of emergency admissions has increased annually at a rate of 2.1% per annum. The growth has been most rapid in the older categories with the 76 to 85 year olds and over 85 year olds emergency admission episodes growing at a rate of 3.5% and 3.8% respectively over this period.

**Figure 9 Growth of Emergency Admissions by Age group 2017-2023**

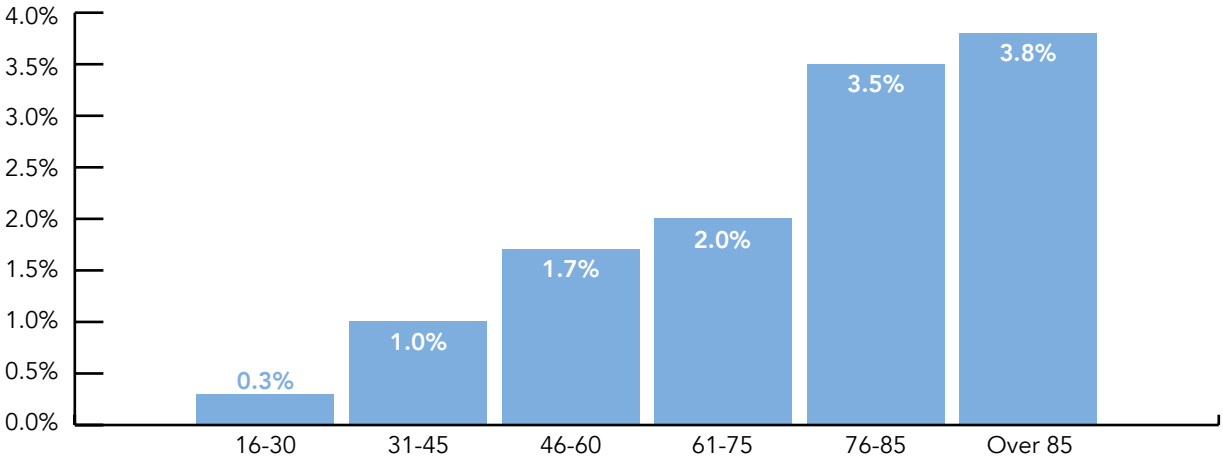



Table 13 outlines the split across hospital models in emergency inpatient activity on a per capita (over 65 years) basis. The table shows that the rates of admission for the Model 4 and Model 3 hospital areas are almost equivalent; this indicates that the overall flows of emergency activity follow the population distribution. Table 14 and 15 show the distribution of Elective and Outpatient activity carried out across the Model 3 and Model 4 areas; these table show that higher volumes of elective and outpatient activity per capita is carried out in Model 4 Hospitals  These tables show that there are substantial differences in the activity mix carried out in Model 3 and Model 4 Hospitals.

*Table 13 Emergency activity by hospital model areas per capita over 65 years (2023)*

| Hospital Model | Emergency Admission Episodes | Estimated Catchment Population over 65 year | Emergency Episodes per Capita (Over 65) |
|---|---|---|---|
| Model 4 Areas | 140,285.0 | 393,413 | 0.36 |
| Model 3 Areas | 138,096.0 | 397,306 | 0.35 |
| Total | 278,381.0 | 790,719 | 0.35 |

*Table 14 Elective activity by hospital model areas per capita over 65 years (2023)*

| Hospital Model | Elective Admissions Episodes | Estimated Catchment Population over 65 year | Elective Episodes per Capita (Over 65) |
|---|---|---|---|
| Model 4 Areas | 272,332 | 393,413 | 0.69 |
| Model 3 Areas | 138,267 | 397,306 | 0.35 |
| Total | 410,599 | 790,719 | 0.52 |

*Table 15 Outpatient activity by hospital model areas per capita over 65 years (2023)*

| Hospital Model | Outpatient | Estimated Catchment Population over 65 year | Outpatients per Capita (Over 65) |
|---|---|---|---|
| Model 4 Areas | 595,074 | 393,413 | 1.5 |
| Model 3 Areas | 265,806 | 397,306 | 0.7 |
| Total | 860,880 | 790,719 | 1.1 |

## 4.2 Waiting Lists

### Outpatients

Interim maximum waiting times of 18 months for new outpatient appointments were implemented in 2022. This was the first step of a phased approach to gradually bring waiting times in line with those recommended in the 2017 Oireachtas Sláintecare Report (Waiting List Action Plan 2023). The longer-term goal is for waiting times for new outpatient waiting lists to be 10 weeks. With the exception of Long Covid Clinics, the specialty of Infectious disease does not typically operate a waiting list. Table 16 illustrates the total outpatient waiting list by specialty and duration. Some long waiting list can be accounted for by specific groups, for example sleep accounts for many long waiters in respiratory medicine.

*Table 16 Outpatient waiting lists by specialty by duration (June 2024)*

| Specialty | Total | Over 6 Months | Over 18 Months |
|---|---|---|---|
| Cardiology | 40,574 | 41% | 5% |
| Endocrinology & Diabetes Mellitus | 20,625 | 54% | 23% |
| Gastroenterology | 16,932 | 32% | 2% |
| General Medicine | 13,464 | 39% | 7% |
| Geriatric Medicine | 4,380 | 13% | 2% |
| Infectious Diseases | 1,535 | 53% | 7% |
| Nephrology | 4,002 | 29% | 4% |
| Respiratory Medicine | 23,722 | 44% | 10% |
| Rheumatology | 12,077 | 37% | 7% |
| **Total** | **137,311** | **41%** | **8%** |

*Note: excludes all paediatric.*

Between 2020 and 2023, the average growth rate for the total number of people on an outpatient waiting list was 4% per annum (Table 17). However, over the past year waiting lists have started to decline, reducing by 1% over the past 12 months.

**Table 17 Outpatient waiting lists (May 2020 to 2024)**

| Specialty | May 2020 | May 2023 | May 2024 | Average Growth 2023-2024 | Average Annual Growth 2020-2024 |
|---|---|---|---|---|---|
| Cardiology | 27,369 | 35,071 | 40,574 | 16% | 10% |
| Endocrinology & Diabetes Mellitus | 13,682 | 21,984 | 20,625 | -6% | 11% |
| Gastroenterology & Hepatology | 12,279 | 15,607 | 16,932 | 8% | 8% |
| General Medicine | 21,109 | 21,465 | 13,464 | -37% | -11% |
| Geriatric Medicine | 2,651 | 3,783 | 4,380 | 16% | 13% |
| Infectious Diseases | 209 | 1,655 | 1,535 | -7% | 65% |
| Nephrology | 2,950 | 3,438 | 4,002 | 16% | 8% |
| Respiratory Medicine | 18,052 | 21,547 | 23,723 | 10% | 7% |
| Rheumatology | 17,614 | 14,555 | 12,076 | -17% | -9% |
| **Total** | **115,915** | **139,105** | **137,311** | **-1%** | **4%** |

*Note: excludes all paediatric.*

### Inpatients

There are a number of distinct components of the National Treatment Purchase Fund (NTPF) waiting lists, these comprise of the "active waiting list" planned procedures and "to come in" patients. Table 18 shows the active inpatient waiting lists as of June 2024. For all specialties (except Endoscopy), the active inpatient waiting lists are small relative to the size of the outpatient waiting lists. There are no NTPF inpatient waiting lists for the specialties of Geriatrics, Infectious Disease or Clinical Pharmacology and Therapeutics

***Table 18 Inpatient waiting lists by specialty (May 2024 – Excluding Endoscopy)***

| Specialty | Total | Over 6 Months | Over 18 Months |
|---|---|---|---|
| **Cardiology** | 4,064 | 20% | 1% |
| **Endocrinology & Diabetes Mellitus** | 62 | 42% | 6% |
| **Gastroenterology & Hepatology (ex Endoscopy)** | 408 | 17% | 1% |
| **Endoscopy** | 24,142 | 12% | 1% |
| **General Medicine** | 32 | 0% | 0% |
| **Nephrology** | 40 | 5% | 0% |
| **Respiratory Medicine** | 903 | 48% | 13% |
| **Rheumatology** | 218 | 76% | 30% |
| **Total** | **29,869** | **15%** | **1%** |

*Note: Paediatric patients are included in all specialties except Endocrinology, Gastroenterology, General medicine and Nephrology*

The active waiting lists capture one element of the future Endoscopy workload. In addition, patients "to come in" have a scheduled appointment date. The Planned Procedure list comprises those patients who have had treatment and require additional treatment at a future date. Endoscopies are primarily performed or overseen by Gastroenterologists or General Surgeons, depending on the site and the type of Endoscopy. Estimates from 2022 indicate that circa 50% of endoscopies are performed or overseen by Gastroenterologists, however this is projected to increase.

***Table 19 Endoscopy waiting lists (May-June 2024)***

| Waiting List Category | Total |
|---|---|
| **Endoscopy Waiting List** | 24,142 |
| **GI Planned Procedure Waiting List** | 82,046 |

# 5. Demand Projection Metrics

The section below outlines the high level demand metrics used in this report. Demand is split between current unmet demand and demand growth. By necessity these metrics are crude and do not capture the wide range of health services provided by each specialty. A more detailed description of the drivers of demand are outlined in Appendix 4 and Appendix 5.

## 5.1 Cardiology

The demand projections are based on a three-tier cardiology service, outlined on Table 20. A minimum level of consultant workforce is recommended for each of the service tiers.

The first tier, consisting of Model 3 hospitals, to be staffed by 3 WTE consultants specialising primarily in Heart Failure and Imaging. The second tier, which are model 4 hospitals, to be staffed by 8 consultants specialising in Interventional Cardiology, Electrophysiology, Heart Failure and Imaging. The third tier, which consists of the six National Comprehensive Cardiac Centres. Four of these, in Dublin, Cork and Galway, will operate on a 24 hour basis and will be staffed by 15 Consultant Cardiologists specialising in Interventional Cardiology, Electrophysiology, Heart-Failure, Imaging and Preventative Cardiology. The exact operating Model for the National Comprehensive Cardiac Centres in University Hospital Limerick has not yet been agreed. For the purpose of estimating the required training intake it is assumed to operate on a 24 hour basis. University Hospital Waterford is assumed to operate on a 12 hour basis, staffed by 8 consultants. There are currently 164 WTE Consultant Cardiologists in the public and private systems. The recommended workforce for Consultant Cardiologists for 2024 to 2033 is 211 WTE. Further increases after 2033 are based on demographic ageing. The unmet demand is split across National Comprehensive Cardiac Centres (42%) other Model 4 hospitals (29%) and Model 3 hospitals (29%).

***Table 20 Recommended cardiac services by hospital tier***

| Cardiac Service Tiers | Services |
|---|---|
| **All Sites** | Integrated Community Care<br>Community Cardiology<br>Preventative Cardiology<br>Specialist Care in Heart Failure<br>General Cardiology<br>Rhythm Disorder<br>Post Intervention Care |
| **Specialist Cardiac centres** | Interventional Cardiology - normally focused on elective and urgent NSTE-ACS (Non-ST Acute Coronary Syndrome) |
| **Nation comprehensive cardiac centres (24 or 12 hour service)** | Primary PCI for STEM-ACS<br>Cardiac Electrophysiology<br>Interventional services for structural heart disease |

## 5.2 Clinical Pharmacology and Therapeutics

A regional approach is taken to estimating the demand of Consultant Clinical Pharmacologists. The service aims to build towards at least 3 headcount Clinical Pharmacologists per Health Region, with all posts split between academia and HSE to build teaching capacity. In addition, 3 posts are maintained across the Health Products Regulatory Authority (HPRA) and National Centre for Pharmacoeconomics (HCPE), with a further 2 assumed in the private sector.

There is a need to maintain a pool of expertise in Clinical Pharmacology and Therapeutics (CPT) in the Irish Healthcare system where medicines constitute the main intervention in healthcare. Training in CPT can be applied to a range of areas; in Ireland areas of sub specialisation for consultants in CPT include Stroke, Nephrology, Hypertension, Cardiology and Geriatrics. Demand for increased pharmacology input into toxicology has also been identified [17]. Internationally there has been some debate as to the definition and role of Clinical Pharmacology & Therapeutics [18, 19]. In Ireland it is proposed that the specialty would expand its current strength in the area of stroke.

### 5.3 Endocrinology and Diabetes Mellitus

A common approach to unmet demand was used for the specialties of Endocrinology, Gastroenterology & Hepatology, Geriatric Medicine and Respiratory Medicine.

Current unmet demand estimates for Consultants in Endocrinology and Diabetes are based on increasing the consultant workforce in the Model 3 hospital areas to 70% of the per capita level (over 65 years) of the Model 4 hospital areas. Current unmet demand is estimated based on the current supply, plus vacant posts, and a minimum value 11.8 WTE Endocrinologists in Model 3 Hospitals per 100,000 people over 65 years. The proposed increases would result in Model 3 Hospitals and associated community hub posts having 3.4 WTE Consultant Endocrinologists on average. Using this approach the current unmet demand is estimated at 22.5 consultants in Endocrinology and Diabetes (including unfilled posts).

Demand growth for Consultants in Endocrinology and Diabetes is estimated based on 3 categories of demand: inpatient (including GIM), endocrinology and diabetes. Inpatient demand is projected to grow based on an adjusted bed days metric with demand increasing at a rate of 2.5% per year. Endocrinology demand is projected to grow based on the demographic profile of outpatients and population ageing. Demand growth for outpatient and community diabetes services are based on the projected growth of 4% for complicated type 2 diabetes [20].

### 5.4 Gastroenterology & Hepatology

Current unmet demand estimates for Consultants in Gastroenterology are based on increasing the consultant workforce in the Model 3 hospital areas to 70% of the per 100,000 population level of the Model 4 hospital area. Current unmet demand is estimated based on the current supply, plus vacant posts, and a minimum value 13.4 WTE Gastroenterologists in Model 3 Hospitals per 100,000 over 65 years. Proposed increases would result in Model 3 Hospitals having 3.5 WTE Consultant Gastroenterologists on average. Using this approach the current unmet demand is estimated at 24.5 Consultants (including unfilled posts).

The workload of Gastroenterology & Hepatology is split out into three areas: Outpatients, Endoscopy, and Inpatient and other workload, which includes GIM. This split was done as each of these groups have different cohort groups.

Demand growth for outpatients is based on the age profile of outpatient utilisation and demographic projections (1.2% per annum).

Demand growth for the Endoscopy Programme is based on the historic growth rate of endoscopies. An assumed demand growth of 4% per year is used for this area of workload.

Demand for the other inpatients category, including GIM, in based on the age profile of the adjusted estimate of the number of bed days for each age group and population projections for

each age group. The estimated number of bed days for each age category is adjusted to have a maximum length of stay to reflect the period in which the consultant is most intensively involved in patient care. This category is projected to grow at 2.5% per annum.

### 5.5 Geriatric Medicine

Current unmet demand estimates for Consultants in Geriatric Medicine are based on increasing the Consultant workforce in the Model 3 hospitals to 70% of the per capita level of the Model 4 hospitals.

Current unmet demand is estimated based on the current supply, plus vacant posts, and a minimum value 22.8 WTE Consultants in Geriatric Medicine in Model 3 Hospitals per 100,000 over 65 years. Using this approach the current unmet demand is estimated at 47.1 Consultants (including unfilled posts). Proposed increases would require Model 3 Hospitals to have 6.2 WTE Consultants in Geriatric Medicine on average.

Demand growth for Consultants in Geriatric Medicine is split evenly between inpatients and outpatients/community workload. Inpatient workload is projected to grow based on an adjusted bed days metric with demand increasing at a rate of 2.5% per year. Outpatient/Community workload is projected to grow at 3.7% based on based on the average projected growth rate of the over 75 year old population over the projection period.

There are currently 60 consultants in Geriatric Medicine per 100,000 over 75 years. Under the proposed increases in training and assumed inflows to the consultant workforce from outside the domestic training programmes, this figure will increase to 64 consultants per 100,000 over 75 years in 2038.

### 5.6 Infectious Disease

The high level drivers of demand for Infectious Disease include demographic ageing, migration patterns and obesity/diabetes. The utilisation of immunosuppressive medications for a range of conditions, and transplantations are also important drivers.

Historically, Infectious Disease services have been concentrated in the large Model 4 hospitals. The recent expansion of Infectious Disease services in Model 3 Hospitals has had an impact on bed utilisation through the OPAT programme.

The demand estimates for Consultants in Infectious Disease Medicine are based on increasing the consultant workforce in the Model 3 hospitals to a minimum of two consultants (1.5 WTE) per site such that no consultant will be working in isolation. Using this approach the current unmet demand is estimated at 22 consultants (including unfilled posts). There are currently 48.1 WTE Consultants in Infectious Disease Medicine. The infectious disease consultant workforce has increased dramatically in recent years, at an average growth rate of 27% per year. This large increase in Infectious Disease Consultants, was from a low base and in the context of a global pandemic.

While there are major limitations to international comparisons, it is useful to note that the number of consultants proposed per capita in 2038 is substantially higher that the current rates in the UK, France, Germany and Spain but within the range of a other Northern and Eastern European countries [21] and less that the current number in the US [22].

## 5.7 Nephrology

A ratio of 1 WTE consultant per 75 renal replacement therapy (RRT) patients is recommended in the UK for Consultants who are participating on the general medical rota [2]. The current number of consultants in Ireland corresponds with this figure.

The growth in demand for Nephology is based on projected increases in RRT patients of 3.5% p.a. This is based on the historic growth rate in RRT. The demand for Nephrology consultants will be impacted by an ageing population and increased survival of patients with cardiovascular disease. In addition, the prevalence of treated ESKD in Ireland is below the European average, increased diagnosis and treatment of ESKD will result in increased demand.

## 5.8 Respiratory Medicine

Current unmet demand for Respiratory Consultants is estimated based on increasing the number of consultants per capita in Model 3 hospital areas to 70% of the per capital level in Model 4 hospital areas. Current unmet demand is estimated based on the current supply, plus vacant posts, and a minimum value 15.9 WTE Consultants in Respiratory Medicine in Model 3 Hospitals per 100,000 over 65 years. Using this approach the current unmet demand is estimated at 35.4 WTE consultants (including unfilled posts). Proposed increases would require Model 3 Hospitals to have 4.1 WTE Consultants in Respiratory Medicine on average.

Demand growth for Consultants in Respiratory Medicine is driven by projected increased demand for General Internal Medicine and epidemiological drivers such as COPD, Asthma, Interstitial Lung Disease, Lung Cancer and Sleep Disorders.

Projected demand growth of 2.5% per year is based on an adjusted metric of projected bed-days. This is based on the age profile of emergency admissions for all dual training specialties and the average length of stay by age group. The adjusted average length of stay is capped at 3 days as Consultant input into patient care declines with length of stay.

## 5.9 Rheumatology

UK guidelines from the British Society for Rheumatology (BSR) recommend one consultant per 60,000– 80,000 population (BSR 2021). Based on a ratio of 1 consultant to 60,000 population, 87.6 WTE Consultant Rheumatologists are currently required in Ireland. This compares to the 72.2 WTE consultants currently in public and private services. The previous Consultant workforce guidance training recommendations from "Demand For Medical Consultants And Specialists To 2028" report envisaged increasing the consultant workforce headcount to 91 by 2028.
Current unmet demand for consultant Rheumatologists is based on the 1:60,000 BSR ratio. Growth in demand is based on the historic growth rate in referrals to the service of 1.7% per year.

## 5.10 Summary of Demand Metrics

Table 21 summarises the demand metrics outlined above.

***Table 21 Summary of Demand Metrics***

| Specialty | Current Unmet Demand | Demand Growth |
|---|---|---|
| **Cardiology** | Minimum Site Numbers | Minimum Consultant Numbers by Site |
| **Clinical Pharmacology & Therapeutics** | Regional Health Area minimum, in line with UK population based recommendation | UK population based recommendation |
| **Endocrinology & Diabetes Mellitus** | Site based minimum Consultant per population level for Model 3 sites. | Workload split into two categories: inpatients and outpatient. Growth drivers of: adjusted bed-days metric; growth in complicated diabetes. |
| **Gastroenterology & Hepatology** | Site based minimum Consultant per population level for Model 3 sites. | Workload split into three categories: Emergency Inpatient and Other; Elective; Outpatient / Community. Growth drivers of: Adjusted bed-days metric; projected endoscopy growth; projected outpatient growth. |
| **Geriatric Medicine** | Site based minimum Consultant per population level for Model 3 sites. | Workload split into two categories: inpatients and outpatient/ community. Growth drivers of: adjusted bed-days metric; growth in over 75 year old cohort. |
| **Infectious Diseases** | Minimum Consultant Numbers in Model 3 Sites. | Workload split into two categories: Inpatient (including GIM) and outpatients. |
| **Nephrology** | 1:75 ratio of current renal replacement therapy patients. | 1:75 ratio of projected renal replacement therapy patients. |
| **Respiratory Medicine** | Site based minimum consultant per population level for Model 3 sites. | Adjusted bed-days metric. |
| **Rheumatology** | British Society of Rheumatologists Recommended population ratio 1:60000 | Historic growth in referrals. |

## 5.11 Current and Projected Demand

Table 22 shows the current actual Consultant workforce (Public and Private, WTE) and the current target workforce as identified by each specialty. The table shows that an additional 148.2 Consultant Posts are currently needed. Table 22 also shows the additional 502.8 WTE Consultants are required out to 2038, to cater for projected growth in demand.

***Table 22 Current estimated actual workforce, and target workforce (public and private)***

| Specialty WTE | Current Actual Workforce | Vacant Posts* | Additional Current Unmet Demand | Current Recommended Workforce | Demand growth to 2038 | Recommended Workforce 2038 |
|---|---|---|---|---|---|---|
| **Cardiology** | 164.0 | 9.0 | 38.0 | 211.0 | 27.7 | 238.7 |
| **Clinical Pharmacology & Therapeutics** | 14.9 | 1.0 | 7.1 | 23.0 | 0.0 | 23.0 |
| **Endocrinology & Diabetes Mellitus** | 110.9 | 14.8 | 7.8 | 133.4 | 72.8 | 206.2 |
| **Gastroenterology & Hepatology** | 129.7 | 3.8 | 20.8 | 154.2 | 82.5 | 236.7 |
| **Geriatric Medicine** | 187.8 | 24.4 | 22.8 | 234.9 | 131.3 | 366.2 |
| **Infectious Diseases** | 48.1 | 2.3 | 19.7 | 70.1 | 32.4 | 102.5 |
| **Nephrology** | 70.3 | 3.5 | 0.0 | 73.8 | 44.6 | 118.4 |
| **Respiratory Medicine** | 142.1 | 14.9 | 20.5 | 177.5 | 87.3 | 264.8 |
| **Rheumatology** | 72.2 | 5.4 | 11.6 | 89.3 | 25.7 | 114.9 |
| **Total** | **940.1** | **79.0** | **148.2** | **1167.2** | **504.2** | **1,671.5** |

**Includes 5 General Medicine Posts allocated across specialties*

# 6. Supply Projections

## 6.1 Proposed HST Intake

Table 23 shows the HST intake in July 2022, 2023, the expected level for July 2024 and the level of intake recommended out to 2030. An important constraint on the expansion of the training programmes is the capacity of the training system. While there may be a clear need to increase the number of HST trainees immediately, in some cases it may not be achievable or desirable to increase the number of HST trainees straight away. There are several reasons for this including the need for sufficient BST trainees to feed the HST training programmes, sufficient training capacity within the system and availability of funding for HST training posts. For these reasons, a staged approach to increasing the intake of HST trainees is taken where increases are required.

***Table 23 Proposed HST Intake 2022-2030***

| | HST Intake | | Proposed HST Intake | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Specialty | July 2022 | July 2023 | July 2024 | July 2025 | July 2026 | July 2027 | July 2028 | July 2029 | 2030 |
| Cardiology | 11 | 11 | 12 | 15 | 15 | 15 | 15 | 15 | 15 |
| Clinical Pharmacology & Therapeutics | 3 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Endocrinology & Diabetes Mellitus | 7 | 7 | 12 | 14 | 16 | 16 | 16 | 16 | 16 |
| Gastroenterology & Hepatology | 12 | 11 | 12 | 14 | 14 | 16 | 18 | 18 | 18 |
| Geriatric Medicine | 19 | 17 | 22 | 23 | 25 | 26 | 26 | 26 | 26 |
| Infectious Diseases | 8 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Nephrology | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Respiratory Medicine | 13 | 14 | 15 | 16 | 18 | 18 | 20 | 20 | 20 |
| Rheumatology | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| **Total** | **87** | **81** | **97** | **106** | **112** | **115** | **119** | **119** | **119** |

Increasing the HST intake will result in a requirement for subsequent increases in the total number of higher specialist training places as intake increase flow through each of the years, these are projected in Table 24.

***Table 24 Total number of HSTs by specialty***

| Year (July) | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|
| Cardiology | 52 | 65 | 69 | 74 | 74 | 75 | 77 | 78 |
| Clinical Pharmacology & Therapeutics | 6 | 6 | 7 | 8 | 8 | 10 | 10 | 10 |
| Endocrinology & Diabetes Mellitus | 40 | 44 | 44 | 52 | 61 | 70 | 74 | 78 |
| Gastroenterology & Hepatology | 58 | 61 | 60 | 62 | 67 | 74 | 80 | 84 |
| Geriatric Medicine | 88 | 102 | 99 | 105 | 112 | 122 | 126 | 129 |
| Infectious Diseases | 35 | 41 | 38 | 35 | 31 | 30 | 30 | 30 |
| Nephrology | 36 | 38 | 34 | 36 | 38 | 40 | 40 | 40 |
| Respiratory Medicine | 64 | 71 | 72 | 77 | 81 | 87 | 92 | 96 |
| Rheumatology | 29 | 32 | 35 | 38 | 40 | 40 | 40 | 40 |
| **Total** | **408** | **460** | **458** | **487** | **512** | **548** | **569** | **585** |

## 6.2 Projected Consultant Supply

Table 25 shows the number of new and replacement consultant posts that need to be filled across the health system to achieve supply projections outlined in Table 26. The supply projections in this report are based on 52 WTE being hired in 2025, increasing to 95 in 2038. The methodology used to generate the supply projections is outlined in Section 2.3 with detailed assumptions by specialty in Appendix 1. These figures include an assumed rate of hiring of both trainees originating from the domestic programme and new consultants from overseas. The figures also account for the replacement of retiring consultants. The number of new hires is indicative and is driven by CSCSTs awarded in previous years. In reality the timing of the creation of new posts will be a function of retirements, retention and service developments and budgetary constraints.

***Table 25 Projected new hires***

| WTE | Q3-Q4 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2038 | 2036 | 2037 | 2038 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cardiology** | 7.0 | 6.5 | 6.5 | 9.5 | 8.7 | 12.4 | 11.6 | 10.8 | 11.5 | 12.2 | 13.6 | 13.6 | 13.6 | 13.5 | 13.5 |
| **Clinical Pharmacology & Therapeutics** | 0.0 | 1.6 | 0.8 | 0.8 | 1.6 | 0.0 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| **Endocrinology & Diabetes Mellitus** | 2.3 | 5.2 | 9.8 | 9.8 | 5.8 | 6.5 | 6.4 | 9.7 | 10.9 | 12.2 | 12.2 | 12.1 | 12.1 | 12.1 | 12.0 |
| **Gastroenterology & Hepatology** | 3.5 | 7.0 | 10.9 | 11.5 | 9.5 | 8.9 | 8.8 | 9.4 | 10.7 | 10.7 | 11.9 | 13.1 | 13.1 | 13.0 | 13.0 |
| **Geriatric Medicine** | 2.9 | 11.7 | 22.1 | 16.9 | 16.8 | 14.6 | 18.9 | 19.6 | 21.0 | 21.7 | 21.6 | 21.6 | 21.5 | 21.5 | 21.4 |
| **Infectious Diseases** | 3.5 | 3.9 | 0.9 | 7.6 | 7.6 | 8.3 | 6.1 | 5.3 | 5.3 | 5.3 | 5.3 | 5.2 | 5.2 | 5.2 | 5.2 |
| **Nephrology** | 3.7 | 3.0 | 4.9 | 9.3 | 5.5 | 5.5 | 5.5 | 6.7 | 6.7 | 6.7 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| **Respiratory Medicine** | 3.4 | 9.0 | 8.3 | 12.5 | 11.1 | 11.7 | 11.7 | 12.4 | 13.1 | 14.4 | 14.4 | 15.7 | 15.7 | 15.7 | 15.6 |
| **Rheumatology** | 1.5 | 4.4 | 4.4 | 4.4 | 4.4 | 5.1 | 6.5 | 6.5 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 | 6.3 |
| **Total** | **27.8** | **52.4** | **68.6** | **82.2** | **71.0** | **72.9** | **77.1** | **82.0** | **87.2** | **91.1** | **93.6** | **96.0** | **95.7** | **95.4** | **95.2** |

Table 26 shows the projected consultant supply for the public and private sectors. The methodology used to generate the supply projections is outlined in section 2.3.1 with detailed assumptions by specialty in Appendix 1. The supply projections are based on an assumed rate of recruitment/ retention of trainees into consultant posts, hiring from outside the Irish training system and retirements including alternative pathways to specialist registration. The projections show the number of consultants (public and private) increasing from 940 in 2024 to 1,604 in 2038. There is substantial uncertainty in these figures, primarily driven by the level of new post creation in the coming years. In reality the timing of the creation of new posts will be a function of retirements, retention, service developments and budgetary constraints.

*Table 26 Projected supply*

| WTE | Q2 -2024 | YE 2024 | YE 2025 | YE 2026 | YE 2027 | YE 2028 | YE 2029 | YE 2030 | YE 2031 | YE 2032 | YE 2033 | YE 2034 | YE 2038 | YE 2036 | YE 2037 | YE 2038 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cardiology | 164.0 | 165.8 | 168.6 | 168.9 | 172.2 | 174.7 | 182.1 | 188.7 | 194.4 | 198.7 | 203.7 | 210.0 | 216.3 | 222.5 | 228.6 | 235.8 |
| Clinical Pharmacology & Therapeutics | 14.9 | 13.7 | 14.3 | 14.1 | 14.0 | 14.6 | 13.4 | 13.7 | 14.0 | 15.3 | 16.6 | 17.8 | 19.1 | 20.3 | 21.5 | 22.7 |
| Endocrinology & Diabetes Mellitus | 110.9 | 110.8 | 113.7 | 120.7 | 127.7 | 130.6 | 132.5 | 134.5 | 139.6 | 146.6 | 154.9 | 163.0 | 170.1 | 177.1 | 184.1 | 191.2 |
| Gastroenter-ology & Hepatology | 129.7 | 130.6 | 135.0 | 143.0 | 151.5 | 158.0 | 162.3 | 166.5 | 171.3 | 175.5 | 179.6 | 184.9 | 191.2 | 197.3 | 203.4 | 211.2 |
| Geriatric Medicine | 187.8 | 186.6 | 195.0 | 212.6 | 224.9 | 236.9 | 243.9 | 255.2 | 267.0 | 278.4 | 290.3 | 302.1 | 316.5 | 330.7 | 344.8 | 357.1 |
| Infectious Diseases | 48.1 | 50.5 | 53.7 | 53.8 | 60.6 | 67.3 | 73.8 | 78.0 | 81.5 | 85.1 | 88.8 | 92.3 | 96.2 | 99.9 | 103.7 | 106.8 |
| Nephrology | 70.3 | 72.8 | 74.3 | 77.9 | 85.8 | 89.9 | 91.4 | 92.7 | 95.3 | 98.5 | 101.6 | 104.7 | 106.9 | 109.0 | 111.1 | 114.3 |
| Respiratory Medicine | 142.1 | 141.6 | 147.0 | 151.8 | 160.8 | 168.3 | 174.9 | 181.5 | 188.7 | 196.2 | 205.0 | 213.7 | 222.2 | 230.6 | 239.0 | 247.8 |
| Rheumatology | 72.2 | 71.9 | 74.5 | 77.9 | 81.3 | 84.7 | 87.3 | 91.2 | 95.1 | 97.8 | 100.4 | 103.0 | 106.7 | 110.4 | 114.0 | 117.1 |
| **Total** | **940.1** | **944.2** | **976.0** | **1020.8** | **1078.8** | **1125.1** | **1161.6** | **1202.0** | **1246.9** | **1292.1** | **1340.8** | **1391.7** | **1445.2** | **1498.0** | **1550.1** | **1604.0** |

# 7. Discussion

The main focus of this report is to inform the HST intake for the dual training specialties of medicine. To achieve this we estimated the projected supply and demand for consultants from 2024-2038. This was done in collaboration with the Clinical Programme leads and National Specialty Directors for each specialty and the Institute of Medicine.

A key principle of Sláintecare is to provide care as close to the patient as possible. In this report we identified unmet demand for key specialties using a regional population based approach. Across the largest specialties of internal medicine (Geriatric Medicine, Gastroenterology and Heptology, Respiratory Medicine and Endocrinology and Diabetes) there is a substantial imbalance in consultant staffing per capita between the Model 3 and Model 4 hospitals, this is used to estimate unmet demand for these specialties.

In 2024 (May) there were an estimated 940 WTE consultants in the dual training specialties in the public and private sector in Ireland. Current unmet demand is estimated to be 227 consultants. This indicates current demand is 24% above current supply. For the specialties that are present throughout the Model 3 and Model 4 hospitals (Cardiology, Endocrinology, Gastroenterology, Geriatric Medicine, Respiratory Medicine) there are currently on average 8.9 WTE consultants in each of these specialties, with the largest number in Geriatrics. In comparison for the Model 3 hospitals there are on average 2.9 WTE consultants. Unmet demand is estimated on the basis of increasing the number of consultants in Model 3 hospitals to 3.5 on average for Endocrinology, Gastroenterology, 4.1 on average for Respiratory and 6.2 for Geriatric Medicine.

Rebalancing the consultant workforce towards the Model 3 hospitals will be challenging. Currently consultant posts in Model 3 hospitals are viewed as less attractive by some qualified specialists. A range of measures, as recommended in the Model 3 Hospital Report, may be required to increase the attractiveness of these posts. Increasing the number of posts in the Model 3 sites across these specialties, in addition to other staffing, is likely to make these positions more attractive to prospective candidates.

An estimated current demand (met and unmet) of 1,167 consultants equates to 23 consultants per 100,000, higher than the UK currently but still well below comparator countries such as Canada or Australia. Another indicator of unmet demand is that while outpatient waiting lists have started to fall, 41% of outpatients are on waiting lists longer than 6 months. The overcrowding of emergency departments is also partially a reflection of understaffing in Internal Medicine.

The workload of General Internal Medicine and most of the dual training specialties are highly correlated with population ageing. Key disease drivers include dementia, stroke, COPD, pneumonia, diabetes, heart failure, renal failure, and rheumatic diseases, all of which are strongly age related. Overall demand is projected to continue to grow, at an annual rate of 2.5%, driven by demographic ageing, population growth and population health. On average demand is projected to grow by 34 WTE consultants per year, this will result in an additional requirement for 504 consultants by 2038. On a per capita basis this would bring demand to 30 per 100,000 by 2038. The report proposed that the combined Higher Specialist Training intake would increase from 97 in July 2024 to 119 in 2030. Figure 10 compares the current number of Consultants per 100,000 with the projected number for 2038. The figure shows the substantial increases in the ratios in some of the specialties, however these crude population ratios are not adjusted for demographic ageing.

Overall, the proposed increases in HST training intake are projected to increase the ratio of consultants per 100,000 population from 18 to 28 in 2038 as trainees go on to take up consultant posts. However, the ratio of consultants to the population over 65 years (Figure 11) is projected

to increase more gradually – from 117 in 2023 to 132 per 100,000 over 65 years in 2038. This includes additional assumed supply from outside the domestic training programmes detailed in Appendix 1.

***Figure 10 Current workforce, projected workforce and projected demand 2038 per 100,000 (WTE)***

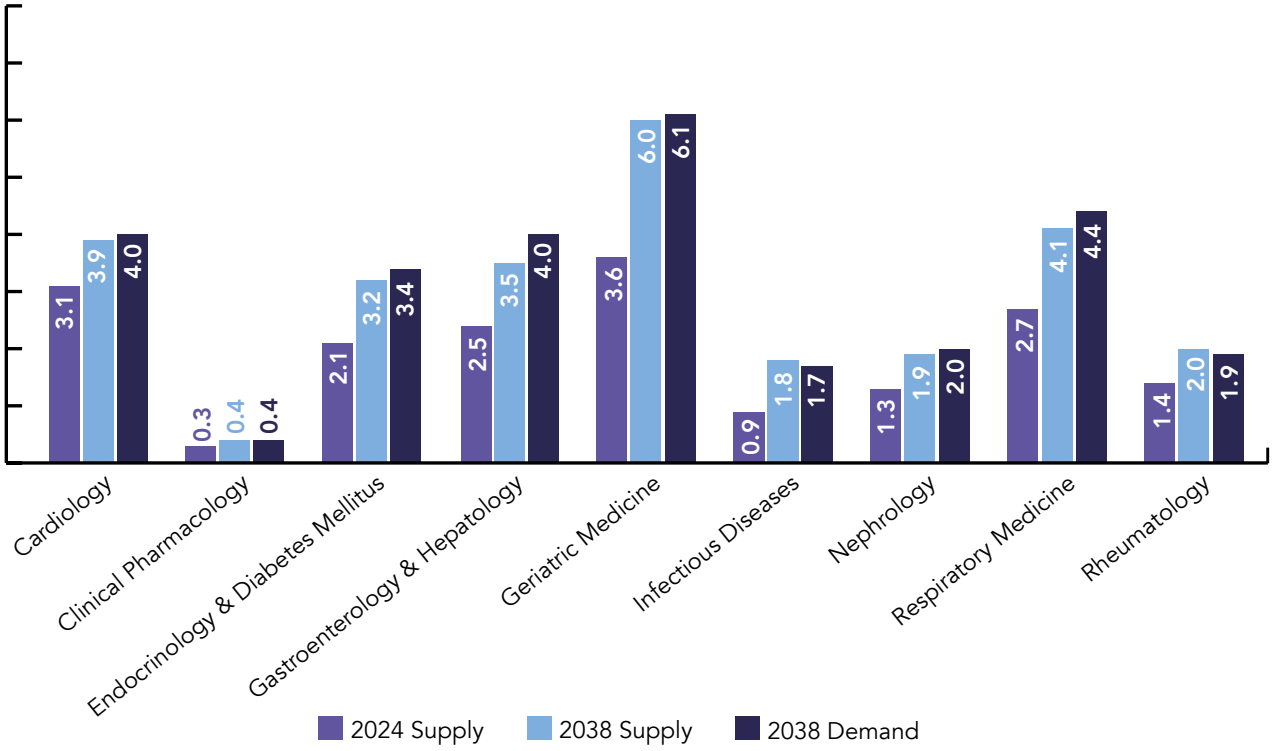
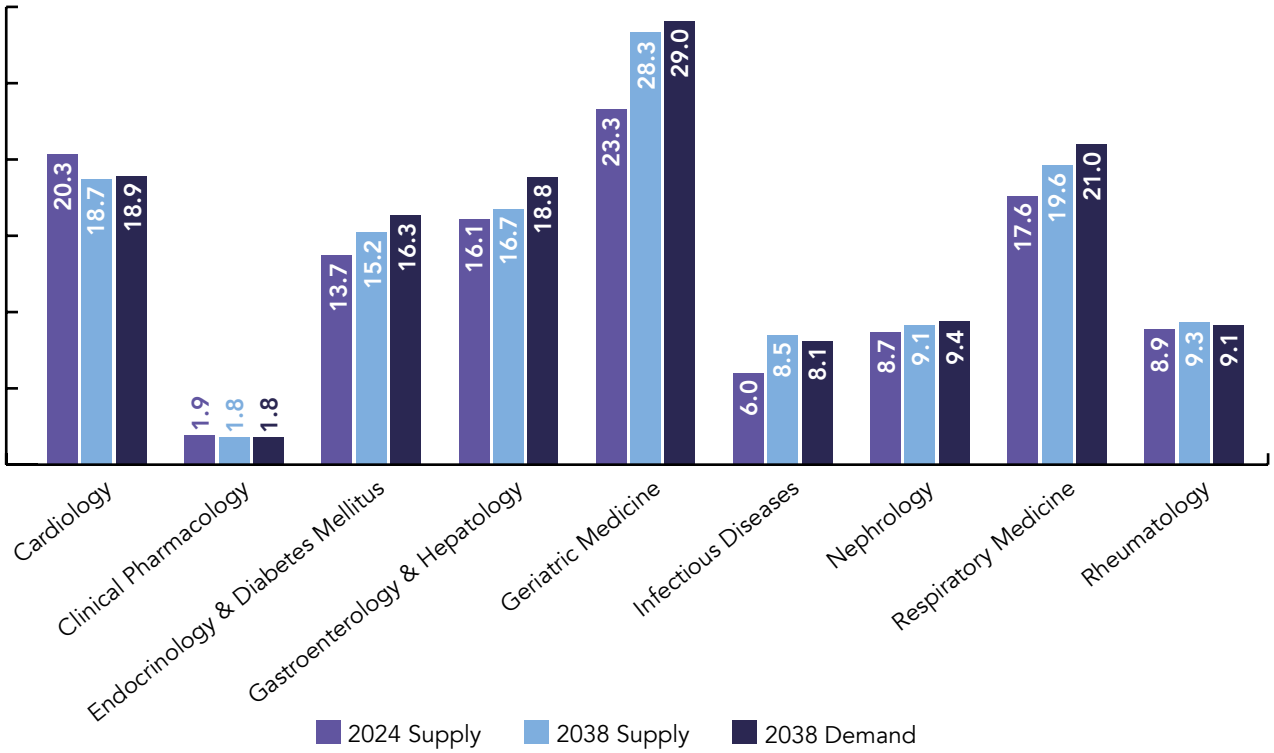



***Figure 11 Current workforce, projected workforce and projected demand 2038 per 100,000 over 65 years (WTE)***



## References


1. RCPI, OPTIMISE Interm Report. 2023.
2. RCP, Consultant Physicians Working With Patients. 2013, Royal College of Physicians. : London.
3. RCPI, Review of the Office of the State Pathologist 2019.
4. Vaughan, L., et al., Models of generalist and specialist care in smaller hospitals in England: a mixed-methods study. 2021.
5. Physicians, R.C.o. Guidance on safe medical staffing. Report of a working party. 2018. RCP London.
6. NDTP, Annual Retention Report. 2024.
7. Charlesworth, A. and P. Johnson, Securing the future: funding health and social care to the 2030s. 2018, IFS Report.
8. Central Statistics Office. Census of Population 2022 -Preliminary results. 2022 [cited 2023 02 June 2023]; Available from: https://www.cso.ie/en/releasesandpublications/ep/p-cpr/censusofpopulation2022-preliminaryresults/.
9. NHS. NHS Workforce Statistics, January 2023 Doctors by Grade and Specialty. 2023 [cited 2023 March 29th]; Available from: https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/january-2023.
10. Office for National Statistics. Population and household estimates, England and Wales: Census 2021. 2022 [cited 2023 March 29th]; Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates.
11. NHS Education for Scotland. Turas Data Intelligence. 2023 [cited 2023 26 April]; Available from: https://turasdata.nes.nhs.scot/data-and-reports/official-workforce-statistics/all-official-statistics-publications/07-march-2023-workforce/dashboards/nhs-scotland-workforce/?pageid=8738.
12. Office for national statistics. Population change for UK countries. 2022 [cited 2023 06 Jume]; Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2021.
13. Medical Board of Australia. Medica board report registration data 31-December-2021. 2021; Available from: https://www.medicalboard.gov.au/News/Statistics.aspx.
14. Australian Bureau of Statistics. 2021 Census All persons QuickStats. 2023 [cited 2023 02 June]; Available from: https://www.abs.gov.au/census/find-census-data/quickstats/2021/AUS.
15. Canadian institute for health information, Supply, Distribution and Migration of Physicians in Canada, 2021 — Data Tables. 2021, CIHI: Canada.
16. Statistics Canada. Census Profile, 2021 Census of Population. 2021 [cited 2023 02 June 2023]; Available from: https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.

17. Tormey, W.P., I. Borovickova, and T.M. Moore, Fault lines in forensic medical toxicology in Ireland exposed through replies of pathologists and coroners to anonymous questionnaires. SpringerPlus, 2014. 3: p. 1-4.

18. Fitzgerald, J.D., An alternative view of the role of clinical pharmacology. British journal of clinical pharmacology, 2011. 71(3): p. 471.

19. Aronson, J.K., A manifesto for clinical pharmacology from principles to practice. British journal of clinical pharmacology, 2010. 70(1): p. 3.

20. Pierse, T., et al., A simulation study of the economic and health impact of a diabetes prevention programme in Ireland. Diabetic Medicine, 2021. 38(6): p. e14540.

21. Brockhoff, R.A., et al., Training in infectious diseases across Europe in 2021–a survey on training delivery, content and assessment. Clinical Microbiology and Infection, 2021. 27(11): p. 1693. e1-1693. e8.

22. AAMC, Physician Specialty Data Report. 2022.

23. Howdon, D. and N. Rice, Health care expenditures, age, proximity to death and morbidity: Implications for an ageing population. Journal of health economics, 2018. 57: p. 60-74.

24. NOCA, Irish Heart Attack Audit National Report 2017- 2020. 2022.

25. Nichols, M., et al., Trends in age-specific coronary heart disease mortality in the European Union over three decades: 1980–2009. European heart journal, 2013. 34(39): p. 3017-3027.

26. Marasigan, V., et al., Explaining the fall in Coronary Heart Disease mortality in the Republic of Ireland between 2000 and 2015-IMPACT modelling study. International Journal of Cardiology, 2020. 310: p. 159-161.

27. Kornej, J., et al., Epidemiology of atrial fibrillation in the 21st century: novel methods and new insights. Circulation research, 2020. 127(1): p. 4-20.

28. MEMBERS, W.C., et al., Heart failure epidemiology and outcomes statistics: a report of the Heart Failure Society of America. Journal of cardiac failure, 2023. 29(10): p. 1412.

29. Adamson, P.D. and D.E. Newby, The SCOT-HEART Trial. What we observed and what we learned. Journal of Cardiovascular Computed Tomography, 2019. 13(3): p. 54-58.

30. Tatum, T., et al., Polypharmacy Rates among Patients over 45 years. 2019.

31. Donoghue, O., et al., The over 50s in a changing Ireland. 2014.

32. Kenny, R., et al., TILDA report to inform demographics for over 50s in Ireland for COVID-19 crisis. Dublin: The Irish Longitudinal Study on Ageing, 2020.

33. McMahon, L.E., et al., The impact of revised diagnostic criteria on hospital trends in gestational diabetes mellitus rates in a high income country. BMC Health Services Research, 2020. 20(1): p. 1-11.

34. Gajewska, K.A., et al., Prevalence and incidence of type 1 diabetes in Ireland: a retrospective cross-sectional study using a national pharmacy claims data from 2016. BMJ open, 2020. 10(4): p. e032916.

35. Garmendia Madariaga, A., et al., The incidence and prevalence of thyroid dysfunction in Europe: a meta-analysis. The Journal of Clinical Endocrinology & Metabolism, 2014. 99(3): p. 923-931.

36. Kirk, L., et al., Haemochromatosis gene frequency in a control and diabetic Irish population. Irish journal of medical science, 2009. 178: p. 39-42.

37. Guggenheim, D.E. and M.A. Shah, Gastric cancer epidemiology and risk factors. Journal of surgical oncology, 2013. 107(3): p. 230-236.

38. Wolin, K.Y. and H. Tuchman, Physical activity and gastrointestinal cancer prevention. Physical activity and cancer, 2011: p. 73-100.

39. Williams, R., et al., Unacceptable failures: the final report of the Lancet Commission into liver disease in the UK. The Lancet, 2020. 395(10219): p. 226-239.

40. Pierse, T., F. Keogh, and S. O'Neill, Generating national projections of dementia cases for Ireland using a calibrated macro-simulation model. BMJ open, 2020. 10(8): p. e035463.

41. O'Shea, E., et al., Developing and implementing dementia policy in Ireland. 2017: NUI Galway and Centre for Economic and Social Research on Dementia.

42. Timmons, S., et al., Dementia in older people admitted to hospital: a regional multi-hospital observational study of prevalence, associations and case recognition. Age and ageing, 2015. 44(6): p. 993-999.

43. PAI. Parkinson's Association of Ireland. 2023 [cited 2023; Available from: https://www.parkinsons.ie/parkinsons-disease/what-is-parkinsons.

44. O'Halloran, A.M., et al., Informing patterns of health and social care utilisation in Irish older people according to the Clinical Frailty Scale. HRB Open Research, 2021. 4.

45. Census 2021. 2022 [cited 2023 March 29th]; Available from: https://www.ons.gov.uk/13.

46. Richards, S.J., et al., Prevalence of frailty in a tertiary hospital: A point prevalence observational study. Plos one, 2019. 14(7): p. e0219083.

47. Livingston, G., et al., Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. The Lancet, 2020. 396(10248): p. 413-446.

48. Van Dyck, C.H., et al., Lecanemab in early Alzheimer's disease. New England Journal of Medicine, 2023. 388(1): p. 9-21.

49. HSE, National Stroke Strategy 2022–2027. 2022.

50. Stack, A.G., et al., Prevalence and variation of Chronic Kidney Disease in the Irish health system: initial findings from the National Kidney Disease Surveillance Programme. BMC Nephrology, 2014. 15(1): p. 185.

51. Walsh, P., et al., Cancer inequalities in Ireland by deprivation, urban/rural status and age: a National Cancer Registry report. Cork: National Cancer Registry Ireland, 2016.

52. Senaratna, C.V., et al., Prevalence of obstructive sleep apnea in the general population: a systematic review. Sleep medicine reviews, 2017. 34: p. 70-81.

53. Antoniou, K.M., et al., Interstitial lung disease. European Respiratory Review, 2014. 23(131): p. 40-54.

54. Gupta, R.S., et al., Incidence and prevalence of interstitial lung diseases worldwide: a systematic literature review. BMJ Open Respiratory Research, 2023. 10(1): p. e001291.

55. Bederman, S.S., et al., Drivers of surgery for the degenerative hip, knee, and spine: a systematic review. Clinical Orthopaedics and Related Research®, 2012. 470(4): p. 1090-1105.

56. Crowson, C.S., et al., The lifetime risk of adult-onset rheumatoid arthritis and other inflammatory autoimmune rheumatic diseases. Arthritis & Rheumatism, 2011. 63(3): p. 633-639.

57. Scott, I.C., et al., Rheumatoid arthritis, psoriatic arthritis, and axial spondyloarthritis epidemiology in England from 2004 to 2020: An observational study using primary care electronic health record data. The Lancet Regional Health–Europe, 2022. 23.

58. Lyons, E.a.P., J, Vocational Rehabilitation and Occupational Therapy: Impact of a Knowledge Translation Initiative. Musculoskeletal Care, 2014. 12(2): p. 118-124

# Appendices

## Appendix 1: Detailed Workforce Supply Assumptions

Table A1 shows the assumed retention rates for future years for each specialty. For most specialties these are based on the recent experience. Historically the retention rate of qualified Nephrologists (CSCST) has been low; 37% of the 2016-2019 cohorts of CSCSTs in Nephrology were working in the public health system in 2023. The model assumes that this can be increased to 70%, in line with average retention rates for those cohorts.

The table also shows the expected inflows into consultant posts from outside the domestic training programmes. These are based on an analysis of inflows into permanent posts between 2021 and 2023. Some of these doctors will have trained in a recognised training programme abroad, some in an unrecognised training programme abroad and some will have trained in Ireland outside of the recognised training programmes.

***Table A1 - Supply model parameter value***

| Year (July) | Assumed CSCST Retention Rate | Consultant Inflows from outside Domestic Programmes |
|---|---|---|
| **Cardiology** | 80% | 3 |
| **Clinical Pharmacology & Therapeutics** | 80% | 0 |
| **Endocrinology & Diabetes Mellitus** | 70% | 2 |
| **Gastroenterology & Hepatology** | 70% | 2 |
| **Geriatric Medicine** | 80% | 3 |
| **Infectious Diseases** | 89% | 1 |
| **Nephrology** | 70% | 2 |
| **Respiratory Medicine** | 80% | 2 |
| **Rheumatology** | 80% | 1 |

***Table A2 – Common supply model parameter values***

| Parameter | Value |
|---|---|
| **Retirement Age** | 65 |
| **WTE Rate Reduction P.A.** | 0.0025 |
| **Years Abroad Between CSCST And Consultants Post** | 2 |
| **Exit Rates Private Sector** | 2.6% |
| **Additional Exits (Under 55)** | 0.6% |

## Appendix 2: Characteristics of Consultant and NCHD Workforce

Table A3 shows descriptive statistics for the current public consultant workforce in headcount (HC), whole time equivalent (WTE), employment status and age as of May 2024 as recorded on DIME.

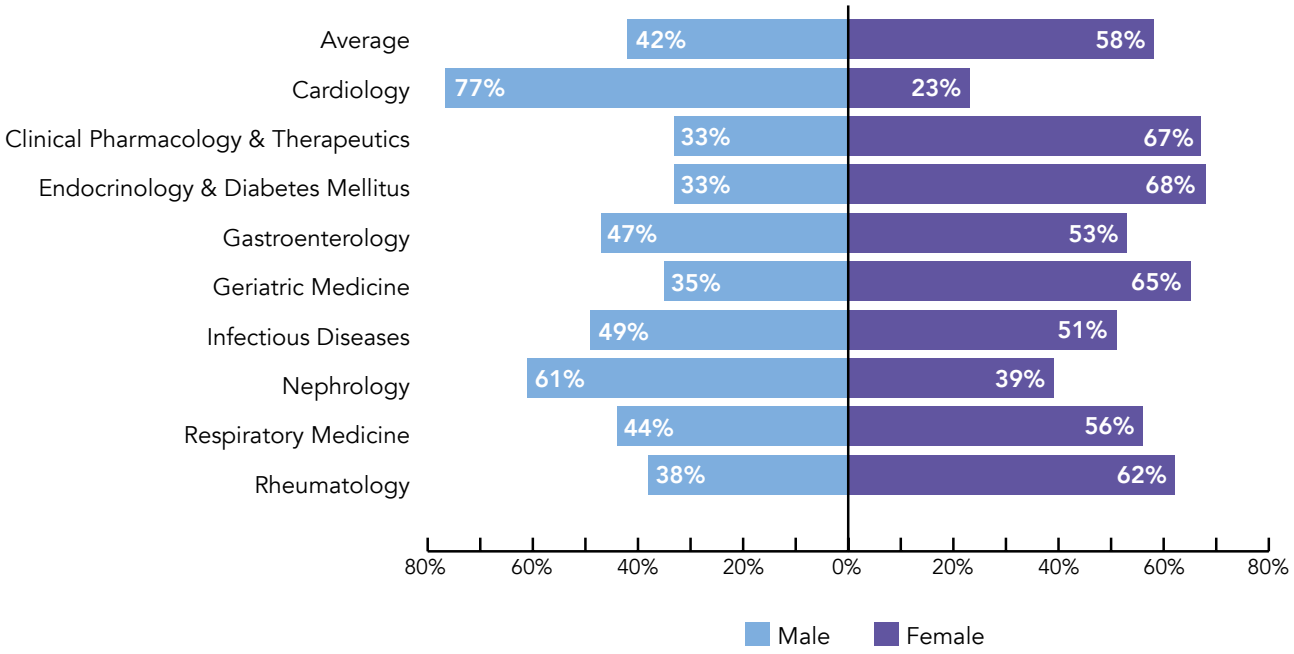
***Table A3 Public consultant workforce descriptive statistics (2023)***

| Specialty | HC | WTE | WTE Rate | Female | Over 55 Years | Perm | Temp | Locum | Agency | General Register |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cardiology** | 134 | 126.2 | 94% | 21% | 29% | 81% | 12% | 7% | 0% | 4% |
| **Clinical Pharmacology & Therapeutics** | 9 | 8.9 | 99% | 30% | 80% | 90% | 0% | 10% | 0% | 0% |
| **Endocrinology & Diabetes Mellitus** | 102 | 99.3 | 97% | 31% | 23% | 81% | 12% | 6% | 1% | 8% |
| **Gastroenterology & Hepatology** | 115 | 108.7 | 94% | 37% | 23% | 90% | 8% | 3% | 0% | 1% |
| **General Medicine** | 26 | 25.3 | 97% | 27% | 23% | 58% | 27% | 12% | 4% | 31% |
| **Geriatric Medicine** | 191 | 178.8 | 94% | 50% | 27% | 80% | 12% | 6% | 3% | 7% |
| **Infectious Diseases** | 51 | 45.2 | 89% | 53% | 16% | 82% | 8% | 8% | 2% | 2% |
| **Nephrology** | 73 | 65.6 | 90% | 40% | 30% | 78% | 12% | 8% | 1% | 7% |
| **Respiratory Medicine** | 135 | 124.6 | 92% | 28% | 24% | 84% | 10% | 5% | 1% | 5% |
| **Rheumatology** | 64 | 58.3 | 91% | 39% | 23% | 78% | 16% | 6% | 0% | 2% |
| **Total/Average** | **900** | **840.8** | **93%** | **36%** | **26%** | **81%** | **11%** | **6%** | **1%** | **6%** |

*Note: Includes consultants in General Physician and Geriatric Medicine Posts.*

Figure A4 shows that trainees in the dual training specialties of medicine are on average 58% female.. The median age of HST trainees is 32 years. The gender and age profile of trainees, highlights the importance of including maternity leave in the assessment of time from starting to completion of HST training programmes, as well as incorporating the impact of initiatives to promote Less-Than-Full-time Working (LTFT).

***Figure A4 Higher Specialist Trainees by specialty and grade (DIME)***




## Appendix 3: Public Sector Activity Overview

Table A5 summarises the outpatient and inpatient activity records by specialty of discharge for the 12 months prior to August 2023. High volumes of elective inpatient and day case work being carried out in Gastroenterology and Nephrology are driven by Endoscopies and Haemodialysis respectively.

The Elective Inpatient Episodes data below is based on HIPE data; a substantial proportion of some activity is not captured on HIPE. For example, the Nephrology elective episodes capture approximately 60% of the hospital based dialysis activity: 40% of dialysis activity is done in a public private partnership activity.

***Table A5 Outpatients, Elective and Emergency Discharges by specialty (2023)***

| Specialty | Outpatient Visits | Elective Episodes[1,2] | Emergency Episodes[1] |
|---|---|---|---|
| **Cardiology** | 129,848 | 19,859 | 19,528 |
| **Clinical Pharmacology & Therapeutics** | See text | | |
| **Endocrinology & Diabetes Mellitus** | 133,349 | 2,626 | 15,638 |
| **Gastroenterology & Hepatology** | 113,367 | 104,893 | 14,474 |
| **General Medicine** | 145,025 | 48,287 | 170,489 |
| **Geriatric Medicine** | 50,995 | 5,618 | 22,307 |
| **Infectious Diseases** | 42,924 | 5,963 | 4,536 |
| **Nephrology** | 70,812 | 190,543 | 8,513 |
| **Respiratory Medicine** | 90,769 | 20,729 | 17,180 |
| **Rheumatology** | 83,791 | 12,081 | 5,739 |
| **Total** | **860,880** | **410,599** | **278,404** |

[1]*Inpatient and Daycase*
[2] *Incudes Endoscopy.*

## Appendix 4: Overarching Demand Drivers

### Demographic Changes

Demographic change is a key driver for demand as the incidence of many chronic diseases increases with age. Under the Central Statistics Office (CSO) M2 scenario (medium migration) for projecting population growth from the 2022 census, it is estimated that by 2038 the population of Ireland will have increased by over 800,000, from 5.2 million in 2022 to 6.0 million (Table A6 ).

By 2038 there will an estimated 1.4 million people between the ages of 61 and 85 and a further 161,426 people over the age of 85 years. This represents an increase in the 61-85 age group of approximately 50% (2.6% per annum) and an increase of 130% (5.4% per annum) in the over 85 age group.

Older age groups exert the greatest pressures on the health service due to increasing chronic disease presentation and complexity of care requirements. Health care utilisation has been shown to rise substantially in the period prior to death [23]. The number of deaths is projected to increase at a rate of 2.5% per annum over the period.

***Table A6 Projected population changes 2022-2038***

| Age Group | 2022 | 2038 | Average Annual Growth Rate |
|---|---|---|---|
| **0-15** | 1,084,577 | 889,281 | -1.2% |
| **16-30** | 943,146 | 1,107,636 | 1.0% |
| **31-45** | 1,147,588 | 1,157,372 | 0.1% |
| **46-60** | 1,010,442 | 1,259,042 | 1.4% |
| **61-75** | 698,167 | 1,006,719 | 2.3% |
| **76-85** | 230,174 | 399,674 | 3.5% |
| **Over 85** | 69,872 | 161,426 | 5.4% |
| **Total** | **5,183,966** | **5,981,150** | **0.9%** |
| | | | |
| **Annual Births** | 60,300 | 51,600 | -1.0% |
| **Annual Deaths** | 32,400 | 48,400 | 2.5% |

### Population Health

Population behavioural risk factors, chief among them smoking, heavy drinking, and obesity, are known causes of chronic health conditions and will impact demand for GIM and various specialties. Recent surveys indicate that 18% of the population are current smokers, down from 23% in 2015. A decline in smoking rates across all age groups (National Tobacco Control Office) will increase longevity. However the impact on the incidence of conditions such as lung cancer will take time to materialise.

While international comparison is not straightforward, rates of alcohol consumption in Ireland are now in line with EU averages (OECD). There are indications that progress has been made on reducing alcohol consumption, particularly in younger cohorts (Heathy Ireland, 2023).

Rates of overweightness in Ireland are above average by international standards and have been increasing in recent years. In Ireland in 2022, 70 percent of 55-64 year olds were considered overweight (i.e. BMI>25) or obese (Healthy Ireland, 2022).

The potential impact on the prevalence of complicated diabetes, and population health more generally, of the new wave of diabetes and weight loss drugs (eg. Ozempic and Wegovy) have not been incorporated into this report. More time and data will be required to assess this impact and the implications for demand for consultants.

**Improved Productivity**

There are a range of measures that may be employed to improve consultant productivity and maximise task sharing. For example, the implementation of a system of electronic health record (EHR) is seen an important for reducing the duplication of assessments and workload of Consultants. The potential impact of these productivity factors have not been quantified in this report.

## Appendix 5: Specialty Specific Demand Drivers

### Cardiology

**Epidemiology**

Cardiovascular medicine involves the management of patients with suspected or confirmed cardiovascular disease and conditions of the heart, circulation and linked organs. Coronary Heart Disease (CHD) remains one of the leading causes of death internationally. Heart attacks affect an estimated 6,000 people per year in Ireland [24]. In Ireland, diseases of the circulatory system are the second largest cause of death (CSO) and result in high rates of healthcare utilisation.

There have been large declines in age standardised deaths for CHD in recent decades across Europe [25]. In Ireland, two thirds of the improved mortality have been attributed to increased Cardiology services and just one third to improvements in population risk factors [26]. Lower population systolic blood pressure, cholesterol and smoking prevalence were found to have contributed to declines in mortality due to CHD. However, increases in diabetes prevalence, population BMI and physical inactivity levels partially counteracted these effects.

There are two broad types of heart attack, distinguished by their electrocardiogram (ECG) appearance: STEMI and NSTEMI.

ST Segment Elevation Myocardial Infarction (STEMIs) are major heart attacks caused by a blockage in the main arteries supplying blood to the heart muscle. STEMIs account for about one-quarter of all heart attacks each year in Ireland [24]. The National Acute Coronary Syndrome programme, established in 2012, identified an optimal reperfusion protocol for STEMIs. According to this protocol patients with STEMI within 90 minutes of an appropriately equipped cardiac centre must be brought immediately to the cardiac centre for emergency stent placement to open the artery (Primary PCI). In the UK and across Europe, primary Percutaneous Coronary Intervention (PCI) centres employ a hub and spoke model so that Cardiologists with interventional expertise contribute to the provision of emergency primary PCI in the centre equipped for this service, even if their day to day work is in a non-primary PCI centre.

Non-ST Segment Elevation Myocardial Infarction (NSTEMIs), which account for about three-quarters of annual heart attack admissions in Ireland, are when blood flow in the coronary artery is only partially interrupted. NSTEMIs are initially treated medically. Evidence of improved outcomes with an early invasive strategy (within 48 hours) for NSTEMI, and within 3 hours for high risk

patients has existed for some time now. Currently NSTEMI's can wait for considerably longer than 48 hours before cardiac catheterisation. The National Acute Coronary Syndrome programme has proposed an extension of the programme to implement an early invasive strategy for NSTEMI in addition to optimal reperfusion for STEMI. This would require greater access to Interventional Cardiologists and cath-lab activity over an extended working week.

Heart failure and atrial fibrillation are the cardiovascular conditions with the most rapidly increasing incidence and prevalence in recent decades. The lifetime risk of heart failure is now 1 in 4, and the lifetime risk of atrial fibrillation for white individuals over 40 years is now one in three [27, 28]. The prevalence of both conditions increase with age, and are also associated with hypertension, diabetes, obesity, and chronic ischaemic heart disease in individuals who have survived myocardial infarction (MI).

Other important emerging areas within cardiovascular medicine are the fields of inherited cardiac diseases and cardio-oncology. The development of specialist inherited cardiac disease clinics and developments in genetic testing have improved diagnosis and treatment of inherited cardiac disease and will continue to do so over the next decades, although the volume of affected individuals is less than either ischaemic heart disease or other lifestyle associated cardiovascular disease.

The deleterious effects of older chemotherapy drugs and radiotherapy on cardiac function have long been recognised, but there are now a very significantly greater number of chemotherapy classes than ever before with multiple and variable adverse cardiovascular effects. Coupled with this is a growing body of evidence regarding the benefits of screening for pre-existing cardiac disease, or risks for developing cardiac disease with certain types of cancer therapy to allow for a tailored approach to therapy and interventions with cardiovascular medication to prevent or diminish cardiac toxicity. Cardio-oncology is a subspecialist area of expertise which has grown exponentially in the US, Europe and the UK, particularly over the past decade and will necessarily be a growth area in Ireland. A European subspecialty curriculum has been developed in preparation for an ESC certification programme designed to recognize the competencies of certified specialists in a similar fashion to intervention, electrophysiology, imaging or heart failure.

**Test, Treatments and Technology**

**Cardiac Imaging**

The developments in cardiac imaging which have taken place in the past two decades have radically altered how patients with cardiovascular disease can and should be assessed and treated. The most common presentation to emergency departments (10% of ED presentations), and a common presentation to general practitioners is chest pain that is not a myocardial infarction. The options for diagnostic testing after appropriate clinical assessment have improved substantially with the addition of cardiac CT and functional cardiac imaging such as perfusion cardiac MRI (CMR). The use of cardiac CT in evaluation of chest pain has been shown to improve both diagnosis and clinical outcomes [29] with a sensitivity and specificity of greater than 95% for the diagnosis of coronary disease compared to a specificity as low as 60% in certain patient groups for exercise ECG.

Increased use of cardiac CT has been advocated by NICE in the UK and is widespread across the US, Canada and Europe for evaluation of chest pain, but also the pre procedural planning of valve and other percutaneous structural interventions. Reporting may be by Cardiologists or Cardiovascular Radiologists, but subspecialist training must be undertaken in both cases. Cardiac MRI has had a very significant impact on the ability of Cardiologists to diagnose and treat

cardiovascular disease with the MR-IMPACT study identifying that almost 70% of patients have a new diagnosis or change in treatment influenced by the result of a cardiac MRI.

The consequence of these advances in non-invasive imaging is that fewer straightforward diagnostic angiograms or normal angiograms are required, allowing cardiac catheterisation laboratory facilities to be used to a greater extent for complex therapeutic procedures including PCI, structural interventions (percutaneous valve interventions) and also electrophysiology procedures.

### Structural Heart Intervention

It is now possible to replace the aortic valve percutaneously, Transcatheter Aortic Valve Implantation (TAVI) procedures are performed almost routinely in intermediate and low risk individuals as well as those who are deemed too high risk for conventional surgical valve replacement. Percutaneous mitral and tricuspid repair, and other valvular interventions are becoming more widely available. Closure devices for Patent Foramen Ovale (PFO) in cryptogenic young stroke patients has been proven beneficial. Devices to occlude the left atrial appendage as an alternative to anticoagulation to prevent stroke are also used in certain patient groups. Structural heart intervention is another growth area in cardiology.

### Atrial Fibrillation/ Electrophysiology

While the ablation of Supraventricular Tachycardia (SVT) has been possible and routinely performed for decades, the absolute numbers of patients who require treatment for SVT are relatively finite. However atrial fibrillation is a highly prevalent condition, and the technical advances in ablation for atrial fibrillation have improved procedural success rates to a point where ablation for atrial fibrillation is much more routinely considered and the numbers of patients undergoing ablation has risen exponentially, with a very significant requirement for more dedicated electrophysiologists.

## Clinical Pharmacology and Therapeutics

### Epidemiology

Clinical Pharmacology & Therapeutics contributes to national activities such as rational and safe prescribing, drug licensing, technology appraisal, pharmacoeconomics and pharmacovigilance. Increasing demand for Clinical Pharmacology & Therapeutics is being driven by demographic ageing and increasing multi-morbidity.

All healthcare providers should aim to encourage rational prescribing practices and balance medicine budgets through activities such as Drug and Therapeutics committees, formulary management, and reviews of drug use. Whilst these activities are not the preserve of Clinical Pharmacologists, they are, however, ideally prepared, following training in medicine development and use, and have a working understanding of the work of the pharmaceutical industry. These skills are also essential for teaching rational therapeutics to medical students and prescribers, managing drug overdoses, and advising research ethics committees.

Polypharmacy, defined as receipt of ≥5 medications in any one month, is frequently associated with potentially inappropriate prescribing and adverse drug interactions [30]. The Irish Longitudinal Study on Ageing study (TILDA) identified a five percent increase (21.0% to 26.0%) in polypharmacy from wave one to wave two of the survey [31]. Medications used to treat cardiovascular conditions (mainly high blood pressure and heart disease) are the most common medications contributing to polypharmacy.

Stroke Medicine is an area of specialisation of a number of current consultants in Clinical Pharmacology & Therapeutics. Approximately 7,600 people experience a stroke each year. There is limited available data on the number of survivors of stroke in Ireland. Based on the UK prevalence rate, there are an estimated 90,000 survivors of stroke in Ireland (National Stroke Strategy 2022-2027). While Geriatric Medicine is the parent specialty for stroke, there is also potentially a larger role for Clinical Pharmacologists to play with increased consultant numbers.

Demographic ageing and increasing multi-morbidity are driving increasing drug use and polypharmacy. State pharmaceutical expenditure expanded from €1.87 billion in 2012 to €2.5 billion in 2021, an average growth rate of 3.3% (Dept. of Health, 2021). Consultants in Clinical Pharmacology & Therapeutics occupy positions in the National Centre for Pharmacoeconomics (NCPE) promoting the efficient usage of medical treatments and in the Health Product Regulatory Authority (HPRA) in the regulation of medicines.

**Expansion of Domestic Training Programmes**

Clinical Pharmacologists frequently have strong links to universities, and provide teaching programmes in Pharmacology. There is an increasing need to provide expertise in the teaching of safe prescribing at undergraduate and post graduate level. With the increasing number of medical undergraduates and the widening role of Nurses and Pharmacists in prescribing, there will be an increasing role for Clinical Pharmacologists in the universities.

**UK Guidelines**

In the UK there are approximately 100 Clinical Pharmacologists. The British Pharmaceutical Society has proposed doubling this number by 2031 (BPS, 2020). RCP guidelines indicate one WTE consultant in every large district general hospital with a population of 250,000 is required. This would equate to 20 consultants in the Irish context; in comparison there are 15 consultant Clinical Pharmacologists in Ireland across the HSE, academic, National Centre for Pharmacoeconomics (NCPE), Health Products Regulatory Authority (HPRA), and private sector.

## Endocrinology and Diabetes Mellitus

**Epidemiology**

The specialty of Endocrinology and Diabetes Mellitus deals with the diagnosis and management of a wide range of hormonal and metabolic disorders. The prevalence of complicated type 2 diabetes, driven by rates of obesity, is a key driver of demand.

There is currently no register in Ireland of the number of people with Type 2 diabetes, thus there is a high degree of uncertainty in the number of people with Type 2 diabetes. Using data from the Irish Longitudinal Study on Ageing (TILDA), the number of people with diabetes over the age of 50 was estimated at 182,833 [32]. The estimated number of people over 40 years of age with type 2 diabetes in Ireland is projected to increase from 216,000 in 2020 to 414,000 in 2036 [20]. This corresponds to an annual growth rate 4.2%. Approximately 40% of people with diabetes in 2036 are projected to have complications associated with the disease (ibid).

Figures from the annual reports of maternity hospitals suggest that the incidence of gestational diabetes in Ireland is 14.8% of births. It is estimated that each year in Ireland, approximately 9,000 women develop gestational diabetes [33].

There were 20,081 prevalent cases of type 1 diabetes in 2016 in Ireland. The crude prevalence was 0.42% and incidence rate of 32 per 100 000 population per year [34].

The majority of diabetes care is provided in primary care, but specialist input is required to support the primary care team with clinical advice and education for health professionals and patients. At various stages, further specialist physician management is required: for the identification and collaborative management of complications: e.g., severe diabetic foot disease, diabetic nephropathy, erectile dysfunction, painful and autonomic neuropathy, or macrovascular disease; at the time of transitions: e.g., new diagnosis of type 1 diabetes, younger type 2 patients, monogenic diabetes; in particular clinical scenarios: e.g., young people with diabetes, diabetic pregnancy, metabolic emergencies.

While diabetes is the most common endocrine disorder, Endocrinology covers a wide range of disorders of the endocrine glands, in particular the thyroid, pituitary and adrenal glands, testes and ovaries. Thyroid disorders are the most common; a meta-analysis of European studies found the prevalence of 3.8% for both previously diagnosed and undiagnosed thyroid dysfunction (hypothyroidism and hyperthyroidism) [35].

Endocrinologists are gradually enhancing services for obesity management and management of lipid disorders and osteoporosis. These advances are broadening the impact of the specialty, and opportunities for career development and multidisciplinary team working.

**Prevention and Technology**

A wide range of initiatives with uncertain outcomes will be required to reduce the impact of obesity and type 2 diabetes [20]. The diabetes prevention programme that is currently being rolled out, while cost effective and worthwhile, is not likely to have a large impact on the number of people with diabetes in the future; this is due to the large number of people who are at risk of developing Type 2 diabetes.

The Health Information and Quality Authority (HIQA) has published a health technology assessment (HTA) recommending the introduction of a metabolic surgery programme as part of the clinical pathway for type 2 diabetes in Ireland. The provision of metabolic surgery in Irish Public Hospitals will require increased pre and post-operative support from a range of clinicians including Endocrinologists.

**Health Service Reform/ Service Reconfiguration Policy implications**

The HSE's Enhanced Community Care (ECC) programme aims to increase community healthcare services and reduce the pressure on hospital services. Each team serves a population of about 150,000 people across three of the 96 community health network areas. Community specialist teams provide care to people with the following conditions: type 2 diabetes, asthma, chronic obstructive pulmonary disease (COPD) and cardiovascular disease. A minimum staffing per 150,000 population of 0.5 WTE Integrated Care Consultant Endocrinologists, who also provides diabetes care in the acute hospital setting (0.5 matched WTE in hospital setting) is recommended under the ECC programme. Since 2021 there have been an additional 25 Diabetes Consultant posts approved via the Enhanced Community Care Programme and the Modernised Care Pathways. Five additional ECC posts are anticipated in the near future for the remaining hubs.

The Model of Care for the Management of Overweight and Obesity envisages how the needs of the population dealing with obesity can be managed with services provided in general practice, primary care and community ambulatory care hubs. However, individuals with severe and complex

obesity, including those suitable for bariatric surgery, require access to acute specialist ambulatory care and individualised, multidisciplinary assessment and treatment.

There are currently two consultant led multidisciplinary weight management services which deliver both medical and surgical treatments for adults with severe and complex obesity in secondary care settings: IEHG (St. Columcille's Hospital/ St. Vincent's University Hospital) and Saolta HG (University Hospital Galway). The model of care recommends that in the initial phase of implementation, there will be one physician-led multidisciplinary team per Health Region, co-located on a hospital site providing care with a single point of access that includes comprehensive assessment and specialist MDT treatment. The lead clinician can be from a range of specialities including, but not limited to, general practice, diabetes and endocrinology, respiratory medicine or cardiovascular medicine.

**Staffing Guidelines**

The recently published Integrated Model of Care for People with Type 2 Diabetes Mellitus recommended 2.5 WTE Endocrinologists, including 0.5 WTE integrated care, per 250,000 population. This ratio is based on the Joint British Diabetes Societies recommendation and is for diabetes only, it does not incorporate staffing for Endocrinology or General Internal Medicine. This equates to 51 WTE consultants based on the 2024 projected population.

Previous UK guidelines indicate that for a population of 5.1 million 81 WTE Consultant Endocrinology physicians are required [2]. This compares to the 111 WTE consultants currently in post across the public and private sector in Ireland.

The recently published Model of Care for Diabetes in Pregnancy recommends 1 WTE Consultant Endocrinologist per 10,000 births, which equates to 5.8 WTE consultants.

## Gastroenterology & Hepatology

**Epidemiology**

Demographic ageing, alcohol use, drug use, smoking, obesity, inflammatory bowel disease and infectious disease (H. Pylori) are key epidemiological drivers of demand for Gastroenterology & Hepatology care. Improved survival among people with digestive and liver disorders is also resulting in an increased workload for the healthcare system.

**Gastroenterology**

Consultants in Gastroenterology provide expertise in diagnosis, treatment and prevention of all forms of digestive tract diseases, both benign and malignant, including emergency and non-emergency presentations. These include diagnosis, screening and treatment with advanced endoscopic techniques for all forms of digestive tract cancers (oesophageal, gastric, pancreatic, bile duct, liver and colon) inflammatory bowel disease, biliary tract pathologies such as gallstones or strictures, coeliac disease and malabsorption, gastrointestinal bleeding including peptic ulcers and diverticular bleeds, and functional gut disorders including reflux, dyspepsia and irritable bowel syndrome.

Attendance to ED with digestive issues is very common. Acute gastrointestinal (GI) bleeding is a potentially life-threatening abdominal emergency that remains a common cause of hospitalisation. In the United Kingdom, upper GI bleeding accounts for 70,000 hospital admissions each year, with

the majority of cases non-variceal in origin. Despite advances in therapy, in-hospital mortality remains high (13%), and re-bleeding is common, occurring in approximately 15% of cases.

The demand for outpatient services has distinct epidemiological drivers compared to those of the endoscopy programme and other inpatient care. Inflammatory Bowel Disease (IBD) is an important driver of outpatient workload for Gastroenterologists. IBD is a chronic, relapsing, inflammatory disorder of the gastrointestinal tract and includes Crohn's Disease and ulcerative colitis. It is estimated that there are 50,000 people in Ireland with Crohn's disease or ulcerative colitis. In Ireland, the number of IBD day cases has been increasing at a rate of 12% per annum between 2009 and 2019 (NCP). It takes on average 24 months to receive an IBD diagnosis which has significant implications on disease natural history, treatment responses long term and ultimately increased demands on hospital services (NCP).

As many as 30% of the population in Ireland are infected with H. Pylori which can lead to peptic ulcers and gastric disease. Other epidemiological drivers of demand include the incidence of Hepatitis B and C, Coeliac disease and gallstone disease.

**Hepatology**

Hepatology includes the care of patients with metabolic dysfunction-associated steatotic liver disease, alcohol related liver disease, haemochromatosis, autoimmune hepatitis, viral hepatitis, plus liver cirrhosis. In addition this specialty encompasses more complex issues such as acute liver failure, decompensated liver cirrhosis, variceal haemorrhage, hepatocellular carcinoma (HCC) and liver transplantation.

Common causes of liver disease are metabolic dysfunction-associated steatotic liver disease (MASLD), alcohol related liver disease (ArLD) and viral hepatitis. All three are preventable, and hepatitis C is now curable. Key underlying drivers of liver disease include child and adult obesity and alcohol consumption levels. Ireland also has a high prevalence of haemochromatosis affecting 1:83 adults [36].

Chronic liver disease is the leading risk factor for hepatocellular carcinoma (HCC), primary liver cancer. HCC is within the top 3 most common cancers globally and the seconnd leading cause of cancer related death. With the rising incidence of liver disease and liver cirrhosis in Ireland, there is a concurrent increase in the incidence of HCC as patients with liver disease have a 1-8% cumulative annual risk for developing this primary liver cancer. In 2016, the National Cancer Registry of Ireland (NCRI) reported a 300% increase in the documented number of liver cancer cases in Ireland in the previous 20 years.

**Endoscopy**

Consultant Gastroenterologists (encompassing both Gastroenterology and Hepatology) oversee the endoscopy service (including in some cases an on-call bleeding rota) and the national Bowel screening service. They provide both in-patient and out-patient care. Endoscopy services in Ireland are performed, in the majority, by Gastroenterologists and a significant minority of general surgeons. Since 2020 endoscopy referrals growth has been running at between 9 and 12% per year.

Cancer incidence and prevention are key drivers of demand for the endoscopy programme. Many cancers of the digestive system have an increasing incidence with age (NCRI). Other drivers of the incidence of GI cancers include diet, physical activity, ethnicity, alcohol consumption and smoking [37, 38]. Improved recognition of colonic polyps and Barretts oesophagus and availability

of effective endoscopic treatment along with EU4health strategies to introduce screening for pre-cancerous stomach lesions are all projected to lead to increased demand on endoscopy services in Ireland and to require the expertise of gastroenterologists.

**Health Service Reform/ Technology**

**Gastroenterology**

There are several recent innovations in non-invasive testing that when fully rolled out will substantially reduce routine waiting lists. These include faecal immunochemical tests (FIT), faecal calprotectin and capsule endoscopy services. The new care pathway for Suspected H. Pylori would have direct access to H. Pylori testing in the community for GPs thereby reducing endoscopy referrals and providing a non-invasive approach to diagnosis and management of H Pylori. Successful eradication will reduce the incidence of gastric cancer and peptic ulcer disease.

Along with specialist responsibilities all gastroenterologists in Model 3 Hospitals and the majority in Model 4 Hospitals look after acute unselected medical patients from ED through their inpatient stays and partake in acute unselected on call rotas covering all 365 days per year.

In addressing workforce planning requirements it is worth noting the absolute requirement for multidisciplinary support without which further consultant appointments will not reach their full potential. To provide evidence-based equitable, timely and optimal care gastroenterology requires the support of a multidisciplinary team consisting of consultants, trainees at all levels, specialist nurses in endoscopy service as well as Advanced Nurse Practitioners (ANP's) and Clinical Nurse Specialists (CNS's) in all subspecialty interest areas (e.g. IBD, general hepatology, liver transplantation, HCC etc.), administrative support, along with the support of senior dietitians, pharmacists and clinical psychologists/ psychotherapists. Many of these positions are currently lacking in most centres nationally.

There are furthermore close associations between gastroenterology/ hepatology and general colorectal, upper GI and hepatobiliary surgical teams, interventional and diagnostic radiology and pathology services which need to be factored in to service provision for patients which often straddle multiple specialties (e.g. in the case of GI bleeding).

**Endoscopy**

BowelScreen is the national bowel screening programme, which is part of the National Screening Service. The screening test involves a stool sample with approximately 3% of screened tests require a follow up colonoscopy. The programme offers all men and women between the ages of 60 and 69 a home screening test every two years. There are currently 0.5 million people in this 60–69 year old age group. Over time BowelScreen will be offered to those aged 55 to 74, there are currently 1 million people in this age bracket. Expanding the age bands of screening will have substantial impacts on the Gastroenterologist's workload.

Expanding the use of CNS and ANP in the endoscopy programme has the potential to reduce the demand for Consultant Gastroenterologists.

**Infrastructure**

While infrastructure is in impediment to the implementation of many services it is of particular concern in the area of endoscopy. It is envisaged that in the future some of the non-invasive diagnostic services required by gastroenterology patients such as stool testing, dietetic assessments, capsule endoscopy and H pylori breath testing could be provided through community hubs.

However significant investment in endoscopy services such as the envisaged surgical or procedural hubs will allow further expansion of advanced endoscopic therapies to remove early cancer and ERCP services to treat life threatening sepsis in gallstone disease. These treatments serve to reduce disease burden overall by improving cancer related mortality and allowing for less invasive treatment requiring fewer bed days or indeed access to day bed facilities alone thus reducing burden on acute hospitals overall.

**UK Guidelines**

UK guidelines indicate that for a population of 5.1 million, 150 WTE Consultant Gastroenterology & Hepatology physicians are required [2]. The Lancet Commission in 2019 reported that the UK needs 0.8WTE consultant hepatologists per 100,000 population, equating to a demand for 43 WTE hepatologists in Ireland in 2024 [39].

## Geriatric Medicine

**Epidemiology**

A key driver for geriatric services is our rapidly ageing population with improved life expectancy which are changing population demographics. As outlined in Appendix 4 the fastest cohort of growth is in the over 85 year old age cohort, this group is projected to expand from 69,872 in 2023 to 161,426 in 2038.

Key conditions which drive the demand for Geriatric Medicine are dementia, stroke, Parkinson's and frailty. Based on international evidence the prevalence of dementia in Ireland is estimated to be 65,000 in 2021 and increasing at a rate of 3% per year due to population ageing [40]. The annual incidence of dementia was estimated at c.8000 based on the 2016 census [41]. A study of public hospitals in Cork found that 25% of over 70 year old patients admitted had dementia [42]. Parkinson's is the second most common neurodegenerative condition after Alzheimer's with the estimated prevalence of Parkinson's is 12,000 people [43].

Geriatric Medicine is the parent specialty for stroke, and the majority of acute stroke care and stroke rehabilitation is undertaken by Geriatricians. Approximately 7,600 people experience a stroke each year. There is limited available data on the number of survivors of stroke in Ireland, based on the UK prevalence rate there are an estimate 90,000 survivors of stroke in Ireland (National Stroke Strategy 2022-2027).

A substantial minority (11%) of the over 65 population are mildly to severely frail [44]. However, international estimates of acute hospitals indicate that 50% of the acute inpatient population are frail [45]. As shown in figure 8, 35% of emergency admissions that are discharged by one of the dual training specialties are over 75 years old. The number of older discharges has been growing more rapidly, with 3.5% and 3.8% growth per annum in the 67-84 and 85 plus age groups respectively.

**Test, Treatments and Technology**

There is currently a low rate of diagnosis of dementia [42] for a wide range of reasons. One factor which is likely to have influenced the low rate of diagnosis historically is the low effectiveness of drug treatments [46]. Recent drug releases which may be more effective are likely to increase the demand for dementia diagnosis [47].

**Health Service Reform/ Service Reconfiguration Policy implications**

The Enhanced Community Care (ECC) programme is a €240 million investment in community health services as part of Sláintecare. Consultant led, community specialist teams for older people provide services for people who have complex needs or need specialist multidisciplinary intervention to help maintain their independence and live well at home. The ECC programme involves 30 new specialist community teams for older people across the country, of which 24 have been created. These teams typically include a 0.5 WTE consultant commitment.

The National Stroke Strategy 2022-2027 outlines the Model of Care for stroke services [48]. Provision of endovascular thrombectomy (EVT) will be based at one of two comprehensive stroke centres at Cork University and Beaumont hospitals. The model of care recommendation is for a total of 5.5 WTE consultants specialised in stroke medicine at both sites to provide 24/7 specialist access and clinical governance for EVT in addition to the comprehensive stroke care needs within centre's existing large catchment areas. There are currently 3 WTE Geriatricians committed to Stroke Medicine working in both Beaumont Cork University Hospital. It is envisaged that additional EVT service would be provided in Galway within the timeframe of the projections in this report.

The National Stroke Strategy recommends a minimum of 6 thrombolysis trained physicians to provide a 24/7 service. It is estimated that an additional 1 WTE equivalent per acute stroke site would be required.

Four Regional Specialist Memory Clinics (RSMC) are currently operating in Cork (Mercy), University Hospital Galway, St James's Hospital and Tallaght Hospital. These clinics are focused on more complex, atypical, unclear cases, or suspected young onset dementia. Recommended consultant staffing for these centres is 2 WTE consultants per team, from the specialties of Geriatric Medicine, Neurology or Psychiatry of Old Age. Typically 50% of consultants are from Geriatric Medicine and most of these posts are currently filled. A further RSMC clinic is proposed for North Dublin which would typically involve 1 additional WTE Consultant in Geriatric Medicine.

Memory Assessment Support Services (MASS) are a new initiative that are currently being developed. Memory Assessment Support Services provide a comprehensive assessment by a multi-disciplinary team (MDT) where there is concerns about suspected dementia or a mild cognitive impairment. There are currently 10 sites with a further 20 sites proposed. Typical consultant staffing of these sites is 1 WTE consultant from the specialties of Geriatric Medicine, Neurology and Psychiatry of Old Age. Typically 50% of consultants are from Geriatric Medicine.

Together, for the Regional Specialist Memory Clinics and Memory Assessment Support Services, an estimated additional 11 WTE Consultants in Geriatric Medicine will be required to staff the proposed additional sites over the coming years.

The HSE plan to expand rehabilitation beds by 1,000 over the next decade. Some of these beds will provide specialist rehabilitation medicine, the majority of the beds will be to support post-acute rehabilitation for older people (geriatric services).

Geriatric Medicine has a substantial role in EDs through Frailty at the Front Door services and AMUs. Orthogeriatrics, which involves the provision specialist care to older patients admitted with various fractures, is an expanding service provided by Geriatric Medicine. Geriatric Medicine also provides community care though nursing homes.

Advance Practitioner roles in nursing and HSCP are not explored in this report. However there are likely to be some level of task sharing that can be achieved between Consultants and Advance Practitioners in geriatric medicine.

### UK Guidelines

Guidelines from the British Geriatric Society recommend 1 Consultant in Geriatric Medicine to 500 people over the age of 85. This would equate to 150 consultants in the Irish context for 2023. While the number of consultants in Ireland is currently above this metric currently (171 WTE) we are in a period of rapid demographic ageing; as noted above the number of people over the age of 85 is project to grow at a rate of 5.3% per annum.

## Infectious Disease

### Epidemiology

The specialty of Infectious Disease focuses on patients with infections such as HIV, Hepatitis C and Hepatitis B, TB and Monkeypox. It also manages hospital acquired infections including C. difficile, those caused by multi drug resistant organisms (MDROs), and complex patients with infections. Key high level drivers of growth for demand are demographic ageing, population health, and migration.

It is expected that the number of complex infections will increase in tandem with the expanding and ageing population. Increasing cohorts of immunocompromised patients receiving chemotherapy, steroids, biologics, long-term immune-suppressants and the increasing medical complexity of patients with prosthetic devices including pacemakers and joint replacements, will further increase the workload of Infectious Disease Physicians. Increasing antimicrobial resistance also leads to an increasing need for infection specialists in infection management.

In 2022, there were 884 HIV notifications in Ireland giving a rate of 17.2 per 100,000 population. This represents a 68% increase in 2022 compared to pre-pandemic year 2019. There is a substantial difference in the HIV prevalence between those born in Ireland and those born outside Ireland, 2.6 per 100,000 in 2022 compared to 66 per 100,000 in 2022 respectively. Future patterns of migration are likely to be key drivers of growth in demand for HIV services.

The provision of Long Covid services also represents a substantial workload for Infectious Disease Consultants who will lead this services.

### Test, Treatments and Technology

The Outpatient Parenteral Antimicrobial Therapy (OPAT) programme allows for the delivery of IV antibiotics in the home to facilitate the early hospital discharge or admission avoidance. The number of bed days saved as a result of the OPAT service increased from 33,227 in 2021 to 39,772 in 2023.

### Migration

Migration is a key driver of a number of areas of demand for the Infectious Disease specialty, including HIV, TB and Monkeypox. Recent CSO projections have substantially increased the projected migration rates.

### Health Service Reform/ Service Reconfiguration Policy Implications

The infectious disease specialty is currently focused in the large Model 4 hospitals. The recent expansion of the service into a number of Model 3 hospitals resulted in a substantial number of bed-days saved through the OPAT service. A Model of Care for the specialty is currently under development. This will scope out the potential for integrated and community care for the specialty.

### Hanley and UK Guidelines

Hanley report (2003) recommended 1.2 Consultants per 100k population, this would equate to 61 Consultants in 2023. In the UK it is recommended that there would be 1 Infectious Disease Consultant per 200,000 people and 1 Consultant in every hospital district [2].

## Nephrology

### Epidemiological Changes

It is estimated that at least 1 in 10 individuals of the general population have some degree of kidney impairment [49]. Acute kidney injury (AKI) is estimated to affect c.10% in adult hospitalised patients and is associated with significant mortality, and an increase in the length of hospital stay and costs. Early identification and investigations can potentially reduce adverse outcomes associated with AKI. National Renal Office data indicates that the number of people requiring renal replacement therapy increased by 3.9% per year between over the last 20 years. Early kidney disease often has no symptoms, people with a higher risk includes those with diabetes, high blood pressure and cardiovascular disease.

The prevalence of chronic kidney disease (CKD) rises with age, with over 30% of elderly patients having some degree of CKD, these are more likely to develop acute kidney injury. Diabetes is the most common identifiable primary renal disease for patients starting RRT (29.4%) (BRS).

### Test, Treatments and Technology

Treatment options for kidney disease include: lifestyle changes, haemodialysis (HD) and Peritoneal Dialysis (PD); a kidney transplant.

Patients with mild-to-moderate Chronic Kidney Disease (CKD) will not require dialysis and can be managed in primary care. Lifestyle measures such as change in diet, stopping smoking, restricting salt intake, regular exercise, limiting alcohol intake, and avoiding non-steroidal anti-inflammatory agents can help relieve the symptoms. Regular reviews are recommended, and a considerable proportion of these interventions can be done through community or home care.

There is a pressing need to expand CKD care to an earlier intervention using drugs such as the SGLT2 inhibitors, the mineralocorticoid receptor antagonists and the glucagon like peptide one agonists, which have all been shown to slow the progression of CKD. It is estimated that approximately 5% of the general population over the age of 50 are potential candidates for these treatments. Some will be seen by their endocrinologist, or their cardiologist, but many will be isolated in primary care.

A kidney transplant is the best long-term option for those patients who are suitable and have found a suitable match. The average one-year transplant success rate is 92% and on typical transplanted kidney will last 14 years. The roll out of a proposed national living donor programme with a paired kidney exchange programme to enhance kidney transplantation and reduce costs and require additional nephrologists to support the National kidney transplant service. The implementation of preventive strategies, particularly the impact of the SGLT2 inhibitors, may reduce the demand for dialysis and kidney transplants.

### Health Service Reform/ Service Reconfiguration Policy Implications

It is the ambition of the National Renal Office to increase the level of home-based dialysis activity (currently estimated at approximately 12%) as care moves closer to the patient, and machines have become more user friendly. The specialty is currently engaging with the chronic disease programme to include kidney disease. Additional community based posts would facilitate an increase in the level of home-based care and outreach/virtual clinics.

Nephrologists are not on the General Medical Rota in a number of sites including: Beaumont, St James and University hospital Waterford. On other sites such as Tallaght not all Consultants participate in the General Medical Rota.

There is also good evidence that AKI prevention/early management needs to roll out to the smaller hospitals.

A Nephrology post without a commitment to GIM is required in Beaumont Hospital where the National Kidney Transplant Service operates.

### Current Structure of Training

The expansion of HST training is limited by the current design of the High Intensity Year. Beaumont do not have the capacity to take more trainees but are the only site for Acute Transplant. Currently, within the 12 months the trainees get a dedicated 6 week rotation on Acute Transplant as well as exposure through on call across the 12 months. The Mandatory High Intensity Nephrology Year also impacts on the development of regionalised training as this must be in Beaumont/Dublin. Expansion of the programme may also be limited by the number of suitable applicants.

### UK Guidelines

A ratio of 1 consultant per 75 renal replacement therapy patients is recommended in the UK for consultants who are participating on the general medical rota [2].

## Respiratory Medicine

### Epidemiology

Key drivers of demand for respiratory medicine include pneumonia, COPD, asthma, lung cancer, interstitial lung disease (ILD), cystic fibrosis, and obstructive sleep apnoea syndrome.

COPD is the most prevalent respiratory disease in adults (COPD Model of Care). Based on international studies it is estimated that there are 275,000 diagnosed cases of COPD and an additional 225,000 undiagnosed cases in Ireland (ibid). Between 2009 and 2017 in-patient adult discharges with a primary or secondary diagnosis of COPD comprised 12% of in-patient bed days used (ibid). Smoking is a contributing factor in 85% of those with COPD. The projected prevalence of COPD is directly related to the historic prevalence of cigarette smoking. Most of those affected have smoked over 20 pack years (20 per day for 20 years). While there have been improvements in the prevalence of smoking in recent years, approximately half of all age categories over 25 years old are either current or ex-smokers. Due to demographic ageing, current and historical smoking, the health burden of COPD in Ireland is expected to continue to increase for the foreseeable future. Socio economic and early life environmental factors are also important risk factors of COPD.

Asthma is a major public health problem in Ireland with up to 21.5% of children and 7-9.4% of adults having asthma (Asthma MOC). While the majority of asthma cases are managed in the community, there were 2,061 hospital episodes in the 12 months prior to June 2023. The age-sex standardised hospitalisation rate for asthma fluctuated over the period from 2010-2019, from a low of 36 per 100,000 populations in 2011 to a high of 45.5 hospitalisations per 100,000 populations in 2019.

Most respiratory physicians are heavily involved in the diagnosis and management of patients with lung cancer [2]. In 2020, 2,500 people in Ireland received a lung cancer diagnosis. Lung cancer rates track smoking prevalence from decades earlier; while the incidence in males has been falling the incidence in females is increasing. Annual numbers of newly diagnosed cases in Ireland are projected to increase by 2.6% per annum to 2045 (National Cancer Registry Ireland, 2019, 2021). Typically, lung cancer is diagnosed at a late stage in Ireland, with 2 out of 3 lung cancers being diagnosed at Stage III or IV (Irish Cancer Society). A late diagnosis reduces the chances of survival and greatly limits treatment options. The reasons for late diagnosis of lung cancer are complex. Symptoms are often very non-specific, tend to appear at a later stage and are similar to symptoms of other common smoking-related lung diseases. Lung cancer incidence is higher in more deprived areas; age-standardised incidence rates are about 60% higher in the most deprived compared with the least deprived fifth of the Irish population [50].

There is no national data currently available on the prevalence of sleep apnoea in the Irish population. A systematic review of the prevalence of obstructive sleep apnea (OSA) in adults in the general population found rates of 6% to 17%. Advancing age, male sex, and higher body-mass index increase OSA prevalence [51]. Obstructive sleep apnoea is associated with an increased risk of cardiovascular disease, abnormal glucose metabolism, depression and sleepiness related accidents with their attendant morbidity and mortality.

Interstitial lung diseases are a group of diffuse parenchymal lung disorders associated with substantial morbidity and mortality [52]. Due to the diversity of ILD conditions, paucity of guidance and updates to diagnostic criteria over time, it has been challenging to precisely determine ILD incidence and prevalence [53]. One form of Interstitial lung diseases, idiopathic pulmonary fibrosis has attracted the most research attention with a wide range of prevalence estimates varying between 0.63 and 7.6 per 100 000 persons in the USA and Europe with a sharp increase with age [53, 54].

Cystic fibrosis is a multi-organ disease that primarily affects the lungs and digestive system. A defective gene causes the body to produce unusually thick, sticky mucus that clogs the lungs leading to life-threatening lung infections and obstructs the pancreas stopping natural enzymes from helping the body break down and absorb food. There are currently 12.5 WTE consultants with a special interest in Cystic Fibrosis. As a result of improved treatments the survival of people with CF has improved substantially. The life expectancy of people born with CF in recent years is 51 years (CF Review, 2023). Between 2017 and 2021 the number of people on the CF register in Ireland grew at a rate of 1.5% per annum to 1315 in 2021.

**Test, Treatments and Technology**

Every winter, a large cohort of respiratory patients with COPD are hospitalised with many requiring non-invasive ventilation in the acute setting.

With the majority of lung cancers diagnosed late, survival rates are low. Five years after diagnosis 18% of lung cancer patients are alive in Ireland (Irish Cancer Society). Radiotherapy and drug therapies are more suitable treatment options than surgery for lung cancer patients diagnosed at later stages.

### Health Service Reform/ Service Reconfiguration Policy Implications

The HSE's Enhanced Community Care (ECC) programme aims to increase community healthcare services and reduce the pressure on hospital services. Asthma and COPD are included on the list of chronic conditions covered by this programme. There are 19 respiratory ECC posts across the country, most of which are split posts between community and hospital roles. The role out of the ECC programme has resulted in a significant reduction in waiting lists.

There are eight National Rapid Access Centres for patients with symptoms of lung cancer in Ireland. The Rapid Access Lung Clinics have a target that 95% of patients referred to a RAC, in a designated cancer centre, receive an appointment within 10 days of receipt of that referral (ICS). The CF model of care is based on the following centres: Cork University Hospital; Beaumont Hospital; St. Vincent's University Hospital; University Hospital Galway; University Hospital Limerick and CHI (to include current Tallaght Hospital service). The model of care envisages 0.9 WTE consultants per centre fully dedicated to CF care.

### UK Guidelines

UK guidelines indicate that, for a population of 5.1 million, 142 WTE Consultant Respiratory Physicians are required (RCP, 2013). The same number WTE consultants (including the private sector) are currently in post.

## Rheumatology

### Epidemiology

The core work of secondary care rheumatology services provided by Consultant Rheumatologists and the multidisciplinary team (MDT) relates to inflammatory disorders affecting joints, muscles and bones. These include rheumatoid arthritis (RA), psoriatic arthritis, axial spondylarthritis and systemic lupus erythematosus [55]. The prevalence of diagnosed rheumatoid arthritis, psoriatic arthritis and spondylarthritis combined is 1.2% of the UK population [56]. Equivalent to 61,500 cases in Ireland with RA comprising two thirds of these. The Incidence of new cases for these three conditions in the UK has recently been estimated as 71 cases per 100,000 (ibd), equivalent to 3,600 new cases per year in Ireland.

Smoking is a recognised risk factor for RA, secular declines in smoking rates are not expected to reduce the disease burden of RA in the short term. While the incidence of RA is not strongly age related, other inflammatory conditions are age related [55].

Up to 30% of people who consult their GPs do so with a musculoskeletal complaint [57]. A small minority of these, with inflammatory arthritis or autoimmune connective tissue disease, will require input from a rheumatologist.

### Test, Treatments and Technology

Many rheumatic and musculoskeletal disorders, such as rheumatoid arthritis, have seen major advances in treatment in the past decade. These treatments are effective in preventing joint damage and patient disability (Model of Care). Intensive treatment of rheumatoid arthritis at an early stage has been shown to prevent much of the long-term damage associated with rheumatoid arthritis. Early treatment requires early diagnosis, hence early referral. While intensive input is required

at the initial stages of treatment by the Consultant Rheumatologist most patients with stable diseases can be managed with general practice and infrequent, usually annual, rheumatology reviews (RCP, 2013).

In 2022, the public rheumatology service carried out 14,000 new and 60,000 return appointments. The ratio of new to return appointments is in line with previously reported rates for the UK (RCP, 2013). The total number of attendances has increased by an average of 2.0% per year from 2015 to 2022. There were 21,000 referrals to the service in 2022. The number of referrals to the service has increased at an average rate of 1.7% p.a. from 2015 to 2022.

**Health Service Reform/ Service Reconfiguration Policy Implications**

The Model of Care for Rheumatology (2017) envisages the expansion of Rheumatology services in a hub-and-spoke model of tertiary centres operating within 6 Rheumatology networks coterminous with the hospital groups and integrated with primary care services through Community Healthcare Organisations (CHOs).

The service is currently delivered through 14 teams across the country with additional outreach services delivered from these centres. The proposed expansion of the consultant workforce is expected to focus on current sites rather than opening new centres.

Rheumatology is primarily an outpatient-based service. A full-time Consultant Rheumatologist would be expected to undertake 4–5 clinics a week and those who perform General Internal Medicine 3–4 clinics a week. (RCP, 2013). The specialty of Rheumatology is not on the General Medical Rota in Our Lady's Hospital Navan or Sligo University Hospital.

**Workforce Guidelines**

UK guidelines from the British Society for Rheumatology (BSR) recommend one consultant per 60,000– 80,000 population (BSR 2021). Based on a ratio of 1 Consultant to 60,000 population, 87.6 WTE consultant Rheumatologists are currently required in Ireland. This compares to the 72 WTE consultants currently in public and private services. The previous consultant workforce guidance training recommendations from "Demand for Medical Consultants and Specialists to 2028" report envisaged increasing the consultant workforce headcount to 91 by 2028.

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