An Roinn Sláinte
Department of Health

Supply and Demand of General Practice in Ireland

Technical Note

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Executive Summary

- General practice is a private industry in Ireland, of which the state is a major contractor for the provision of some services. However, **as a result of the private organisation of the general practice sector, data visibility is opaque – for example the number of WTE General Practitioners (GP) and General Practice Nurses and Midwives (GPNM) across regions is not known, nor is there good visibility of other workforce in this sector**. While there are multiple data sources, the estimates vary considerably. Poor understanding of the number of general practice sites, the composition of workforce, working practices, pricing and its incentive structures, and demand impedes engagement with stakeholders and policy development.

- The Department of Health is undertaking a review of general practice services in Ireland. Under the terms of reference for this process the **Department commits to using the available evidence to inform the review of general practice services, with a particular focus on training, capacity, out-of-hours services and the support model**.

- **This report outlines the available data on the workforce and supply in the general practice market, and usage of general practice services**.

Key Findings

- The poor quality of the data landscape cannot be over-stated – ***all the data underpinning this analysis, which concerns general practice in 2022, is inherently uncertain and subject to a margin of error***. Data is drawn from a wide range of sources including from Primary Care Reimbursement Service (PCRS), Health Service Executive (HSE) Find My GP, general practice websites, the Medical Council, the Nursing and Midwifery Board and Cervical Check. Estimations relative to local populations should be interpreted with caution in major urban areas and WTE estimations are less reliable on a regional basis.

- Nationally, the workforce of General Practitioners (GP) and General Practice Nurses and Midwives (GPNM) provides a reasonable level of coverage in response to current demand. Service usage is due to grow with increasing population requirements. There is good uptake of public contracts. However, there are some areas with clear capacity constraints arising

where workforce has not expanded to meet demographic pressures. While some GPs are retiring and leaving the profession, the rate is at an expected level and new recruits will more than replenish these numbers. 500 new GPs would be needed to meet demand under universal access.

We identify six central questions underscoring the evidence requirements for the strategic review of GP services below and use this structure to summarise some of the findings of the analysis.

How many general practices and general practice staff are there?

- There were 3,262 clinically active GPs providing standard services in Ireland in mid-2022, the timepoint where our data scraping exercise took place. They were active in 1,451 general practice settings, with this reflecting **2,690 to 2,740 whole-time equivalent GPs - one WTE GP per 1,879 people** in the population of Ireland.

- There are approximately **2,200 General Practice Nurses and Midwives (GPNM) in Ireland, which translates to 1,664 WTE GPNM**. Across practices, there are 1.5 GPNM on average. The variance in scope of this role could inhibit workforce development and mobility, but there is significant opportunity to develop policy in this area arising from how HSE contracts relate to the work of GPNM.

- There is no visibility of the totality of other significant roles in general practice, including practice managers, practice administrators, and Health and Social Care Professionals (HSCPs) – or of out-of-hours services.

- Just over **1 in 5 GPs are in single-GP practices** and a further 1 in 5 GPs operate from dual-GP practices. **In areas where single GP practices are common but the population is ageing, general practice nurses and midwives (GPNM)** numbers are relatively high, which may be offsetting high service usage. There are strong health service management, health outcome and economic rationales for general practices structured around multiple GPs.

What does retirement and succession planning in general practice look like?

- The age distribution in the GP workforce is normal relative to the national workforce and the age at which GPs enter the workforce.

- Intake to the GP training scheme has increased by 86% since 2015. Accounting for attrition of graduates and the possibly higher productivity of older GPs, **by 2030 around 2.2 GP national graduates will have on-boarded relative to each GP who becomes inactive**.

This means that, after accounting for retirements and resignations, there will be just over 1,000 GPs available to meet increasing population demand and other changes to services.

- **Inadequate succession planning for retirement may be a risk to the stable supply of GP services in some areas**, with single GP practices making up half of the risk group. However, the **HSE appears to be effective in identifying and supporting panels at risk**. Still, there remain a few locations **where vacancies persist – these arise equally between rural areas and non-city urban areas**.

- There is some indication that **GPs could be deferring retirement in capacity-constrained areas.**

- **Young GMS contract-holders often select into areas that neighbour those with capacity constraints.** As such, access to a GP may be feasible in many areas that are identified as having low capacity, but may indicate that people living near the boundaries of the geographic areas travel into neighbouring areas for care. Depending on the location of general practices, this might be the closest practice. However, in some cases there could be a larger travel requirement for access.

What is the productivity of general practices?

- 13% of GPs work at least 48 hours each week, increasing the overall supply of general practice hours by 4 – 7% through overtime.

- Consultation-load is the most effective way we can consider demand on GPs. **WTE GPs have 29 consultations per day on average – increasing slightly to 30 when adjusting for complexity of care**. This adjustment reflects that some demographic groups, for example older populations, have longer consultation times and are more likely to require home visits.

- East Clare, Wexford, East Galway, East Limerick, northwest Kildare, and East Mayo have **high complexity-adjusted consultation levels**.

- In consultation terms (acknowledging that the scope for consultations varies between GPs and GPNM), **GPNM increase the productivity of general practices by 33%.**

- General practices are somewhat responsive to access needs in terms of public opening hours – particularly in multi-GP practices. **Multi-GP practices provide the scale to allow**

for GP cooperation on covering leave and expanding standard hours that could reduce requirements for out-of-hours services.

- While there is **scant evidence that younger GPs are currently taking on shorter patient lists** in Ireland (reflecting shorter working hours), the literature indicates that this is the intention for the younger workforce. Based on GP reporting on working hours intentions, we estimate that **1.1 recent graduates are needed to replace the working time of a retiring GP.** There is also an **opportunity to improve the productivity of the workforce through incentivising and supporting complementary work in non-practice hours** such as research, mentoring and supervision, and upskilling/specialisation.

What are the characteristics and drivers of public contract uptake?

- **Public contract uptake is largely a function of the stage of their career that a GP is in**: GPs have fewer contracts when they are entering and leaving their careers.

- **In some areas the proportion of GPs with GMS contracts is low relative to the number of public patients**. In most areas, but not all, this seems to be an administrative quirk arising from de facto practice contracts masking a greater supply of GPs active in public services.

- **Public contract uptake is lower in more economically advantaged areas** (and thus where there is likely lower eligibility for means-tested schemes). This is not an issue when universal coverage does not exist but may indicate a set of preferences that could affect largescale eligibility expansion.

- There may be some **scope to consider practice-based contracts** where that is desirable for the practice and its GPs. This could help achieve **better understanding of actual supply while minimising the administrative burden on the practice and PCRS**.

- Across the country, but particularly in the west and northwest, **some GPs hold multiple panels in multiple locations** – likely arising from GPs providing cover in some cases or working across sites in more rural areas. This administration of this practice could inflate recorded headcount GP numbers slightly, and reinforces the importance of recording working hours with contracts.

- Coverage of major schemes such as the modernisation scheme and the under 6 contract is high. However, **uptake of contracts related to the maternity and infant scheme, childhood immunisation, and cancer screening are low in these areas suggesting that continuity of supply in terms of GP workforce may affect access to healthcare**. Of

course, this could reflect practice-based contract uptake. However, together with the incidence of some panels being covered by locums over the long-term, effectively as de facto salaried GPs, the reality of supply in these areas should be considered for continuity of good quality service provision.

- Meath and central Cork have **relatively low uptake of the GMS contract despite being areas with relatively higher cardholding populations**.

- There are **areas where average panel size remains high regardless of assumed contract-sharing**: in North Donegal, East Mayo, and South Wexford, there are a high amount of public patients and relatively low number of GPs.

Are there capacity constraints within the system, and if so what are the determinants?

- Capacity constraints **arise in areas with high levels of population growth and ageing**. The GP and GPNM workforce are responsive to these factors, more so for ageing, and there is a lag.

- The general practice workforce is **least responsive to demand shocks in** two types of area: **large urban areas and areas with a high proportion of young children**. **This may be because these areas are experiencing rapid population growth, characterised by demographics that have high GP requirements for a few years that later levels off.**

- In areas with high child populations, **medium-term increases in workforce capacity could be useful** in offsetting demand shocks.

- In large **urban areas, mobility in accessing care is widespread** indicating the responsiveness of the population to local area constraints and/or preferences for mobility. As such, GP preference for location in one area over another may not overly impede capacity.

- GPs show preferences in the locations where they establish themselves, for example establishment is negatively correlated with growing levels of disadvantage in an area. However, **many newer GPs enter areas with clear capacity constraints, regardless of other preferences.** This is likely a result of good cooperation and signalling between the HSE, ICGP, GPs, and other stakeholders. Improving the signalling of areas with increasing capacity constraints, through interoperating mechanisms such as the relatively newly deployed Social Deprivation grant and consistent monitoring of demographic and workforce shifts, may facilitate the smoothing of this transition period.

What are the factors that should be considered in forecasting future GP workforce requirements?

- **Population growth, as well as ageing populations, can increase service usage in general practice:** by 2030, the population of people aged 70+ is expected to grow by 30-33% from current estimates.
- **In Dublin commuter towns and areas the population is growing rapidly. These regions have high GP requirements, particularly young families require more frequent GP visits.**
- In **areas with ageing populations, single-GP practices dominate** and individual GPs sometimes hold multiple panels across multiple locations. These factors can increase risk to the continuity of care.
- Expansion of eligibility to free GP care will likely lead to induced demand, and **universal access would require about 500 extra GPs**.
- GPNMs could potentially take on **83 to 100 GPs worth of clinical caseload** in women's health. Streamlining and broadening the scope of the GPNM role could increase practice productivity and/or provide a buffer against decreasing GP working hours.
- Future general practice workforce projections are included in the recent ESRI Capacity Review.

COMMENT ON QUALITY ASSURANCE

The work is not formally peer reviewed but was circulated among stakeholders and experts for response and feedback.

AUTHORSHIP

This report is written by Deirdre Coy and Mahnoor Tanwir.

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1. Context

In this section

The background to this work, including commitments under Sláintecare, the Programme for Government and Department of Health work programmes.

1.1 BACKGROUND

In Ireland, general practitioners (GPs) are central to the delivery of healthcare services. They can be directly accessed by the general public and act as gatekeepers for a wide range of health and social services. General practice has evolved in recent years and now many GPs work in practices with other GPs, general practice nurses and midwives (GPNM), practice administrators and Health and Social Care Professionals (HSCPs). Typically patients register with a given GP or general practice and will attend this setting for routine care. GPs are private contractors. Around 60% of the population pay for general practice services out of pocket – usually with a flat fee for a consultation with some additional or varying fees for additional services. Many people pay entirely privately, although some private health insurance schemes provide some level of co-payment.

Just over 40% of the population can access the GP for free, as they hold 'medical cards' or 'GP visit cards'. These cards provide eligibility for an unlimited number of free-for-the-patient standard GP consultations (depending on service availability). However, some services still require a fee – for example the provision of sick certs. Eligibility for these schemes is primarily determined on the basis of age and disposable income. Some general practice services are available on a universal basis, where demand exists: for example, some types of cancer screening, maternity and infant services, opioid substitution and childhood immunisation.

A series of contracts between the state and individual GPs determines remuneration for general practice services. In particular the General Medical Services (GMS) contract, which has a number of adjoint agreements – most recently the 2019 GP agreement – determines the provision of and reimbursement for services provided to medical card and GP visit card holders.

Currently, the government is committed to strengthening general practice as the model of practice changes and drawing up a future eligibility framework. To inform this work, in this technical note the market for general practice is outlined including the supply and demand of general practice services. This work provides a baseline economic perspective which can be incorporated with clinical, stakeholder, and other perspectives.

1.2 SLÁINTECARE

For GP care, Sláintecare (2017) commits to free care at the point of access for all – with entitlement phased in through income-based entitlement.

> *"It is proposed to extend GP care and primary care services without charge to an additional 500,000 people each year on the basis of income. There will need to be a corresponding phased increase in capacity of general practice to deliver this… A new GP contract and salaried GPs will facilitate this."*

The report also notes that,

> *"Expanding entitlement without the capacity to respond on the supply-side, will most likely mean rationing and continued waiting lists. This also applies to extending eligibility to universal GP care where existing capacity is exhausted. The Committee strongly believes that capacity must be addressed, while progressing the re-orientation of the system towards primary and social care."*

In further comments on capacity, the report states,

> *"The out-of-pocket cost barriers for many health services in Ireland also likely suppress some of the health need that actually exists, especially in primary care. Individuals who cannot afford to pay to see the GP may forego care and may either endure illness without treatment or seek care at a higher level of complexity such as the Emergency Department at a later, more serious stage of illness. Therefore, the current volume of care is not an adequate gauge for the true demand. The rise in demand for GP services after the introduction of the under-6s GP visit card in 2015 bear this out. The phased extension of entitlement to free GP care to the entire population will lead to higher visitation rates. There will need to be a corresponding phased increase in capacity of general practice to deliver this care. A new GP contract and salaried GPs will facilitate this."*

In this paper, the current capacity of general practice workforce will be considered.

1.3 PROGRAMME FOR GOVERNMENT

On the supply of general practice services the **Programme for Government** (2025) includes a commitment to support general practice and make healthcare more affordable.

Programme for Government Commitment	Technical Note Objectives
Publish the Strategic Review of General Practice, and bring forward a new, modern GP contract.	**Inform identified evidence requirements on Strategic Review and analyse features of the current GP contract**
Examine the possibility of expanding the Structured Chronic Disease Management Programme	**Examine the uptake of HSE GP contracts in 2022, including Chronic Disease Management**
Ensure full national coverage for GP On Call.	**Examine current general practice capacity geographically**
Increase the number of GPs through a combination of international recruitment and increased training places.	**Examine the impact that short-to-medium term recruitment plans will have on capacity**
Provide additional supports for GP practices in rural areas and areas of increased need.	**Identify areas of constrained capacity and identify characteristics of capacity in these areas**
Provide targeted supports for newly qualified GPs and to GP practices that take on newly qualified GPs.	**Identify the characteristics of newer GPs and multi-GP practices**
Explore the recruitment of HSE-employed GPs.	**Examine if de facto salaried GPs exist and where there may be a rationale for them.**
Expand free GP services to children up to at least 12 years, and keep its further extension under review; Continue to extend access to free contraception; Seek to further increase medical card income limits.	**Consider capacity now, and that coming on stream relative to that which will leave the system over the 2020s.**

1.4 DEPARTMENT OF HEALTH

General practice is a private industry in Ireland, which the state contracts for the provision of some services. As a result, visibility on the sector in data terms is opaque. Poor understanding of the number of general practice sites, the composition of workforce, working practices, pricing, incentive structures, supply, and demand hinders engagement with stakeholders and policy development.

The 2019 Agreement on Contractual Reform and Service Development between the Department of Health, the HSE and the IMO includes the following commitment:

> *"The government intends in the context of Sláintecare, to undertake a fundamental review of the contractual framework for GP services so as to develop and put in place arrangements which will ensure a sustainable GP service as a core element of Primary Care, focused on facilitating integrated provision of care in the most appropriate settings."*

The Department of Health is engaging on a Strategic Review of General Practice services. The terms of reference commits to use available evidence to inform the review.

Strategic Review Evidence Requirements	Technical Note Objectives
Capacity: The GP team with a particular focus on practice nursing, administrators, and the potential for the development of other roles	**Examine capacity for general practice including sites, GP, practice nurses and midwives, and the demographic effects on demand for these services**
Out of hours: Accessible, high quality out of hours GP care	**Examine current general practice capacity geographically**
Capacity: Practice establishment and succession planning **Training: The retention of GP graduates across their careers**	**Examine the impact that short-to-medium term recruitment plans will have on capacity** **Identify the characteristics of newer GPs and multi-GP practices**
Capacity: Provision in areas of challenging service delivery	**Identify areas of constrained capacity and identify characteristics of capacity in these areas**

Capacity: Maximising capacity and panel sizes **Training: Workforce supply with respect to demographic shifts** **Support model: Scope of universally accessible services** **Support model: Model required to underpin provision of sustainable GP services set out in Sláintecare**	**Consider capacity now, and that coming on stream relative to that which will leave the system over the 2020s.**
Support model: Tax treatment of practices **Capacity: Integration with the Enhanced Community Care Programme**	**Not examined in this note.**

This paper will consider the market for General Practice services from an economic perspective to support this work, with a particular aim to support evidence building in the priority areas set out in the terms of reference for the Strategic Review of General Practice.

2. National Supply and Demand

In this section

The data and modelling strategy for determining general practice supply and demand in Ireland in 2022 is described with national figures outlined.

There is no consensus on general practice supply in Ireland. We estimate that there are 3,262 GPs, 2,740 whole-time-equivalents (WTE), providing "standard" general practice services. They are found in 1,451 general practices. Many other GPs provide non-standard services, for example in locum roles and non general practice settings. We estimate 2,220 general practice nurses and midwives (GPNM), 1,664 WTE, in 965 general practice sites with just over half of GPNM associated with public funding support. We observe 1,724 of these GPNM (1,304 WTE) in this analysis. There were 19 million GP consultations (3.6 per person) and 9 million GPNM consultations (1.8 per person) in Ireland in 2022. GP consultation rates have stabilised over time while GPNM consultation rates are increasing. Many GPs, particularly in rural areas, operate across multiple GP sites. In some areas, a specific locum GP has been in situ for a long period, perhaps indicating a de facto salaried GP position in areas where the usual approach to GPs taking up positions hasn't been effective.

2.0.1 Overview of suppliers

In the Irish health system, general practitioners (GPs) are privately contracted to provide health services, and can be accessed through private and public financing mechanisms. GPs work within general practices alongside nurses, midwives, administrators and – increasingly – other health practitioners in the delivery of care. Typically, a GP, a group of GPs, or general practice company is the employer of other staff within the practice, with some contractors working alongside them. In this analysis we consider the supply of general practitioners and general practice nurses and midwives (GPNM). It is a limitation of this study that little can be said about other clinical staff in general practices and practice administrators despite their important role in general practice delivery.

Note: For the purpose of this analysis, 2022 is the year of analysis as this is the timepoint when data was broadly available and when manual scraping was carried out.

2.1 HOW MANY GPS ARE THERE?

2.1.1 The uncertainty of GP supply. The number of GPs is not well established, arising from registration processes and the independent functions of general practitioners. This uncertainty is a significant issue in planning health services and government expenditure, policy-making, and international comparisons. Furthermore, it could hamper engagement between stakeholders if there is no consensus on basic statistics. Available estimates range from 3,000 to 4,257:

- In monthly reports on HSE contracts, just over 3,000 GPs are typically reported.
- The ICGP estimated that 3,496 GPs were active in a 2020 paper (Collins & Homeniuk, 2021).
- Based on Revenue data, 3,965 GPs were active in Ireland in 2017 (Correspondence, 2023).
- The Irish Medical Council reported 4,257 GPs with established registration in 2022 – the figure typically used for international comparison purposes.

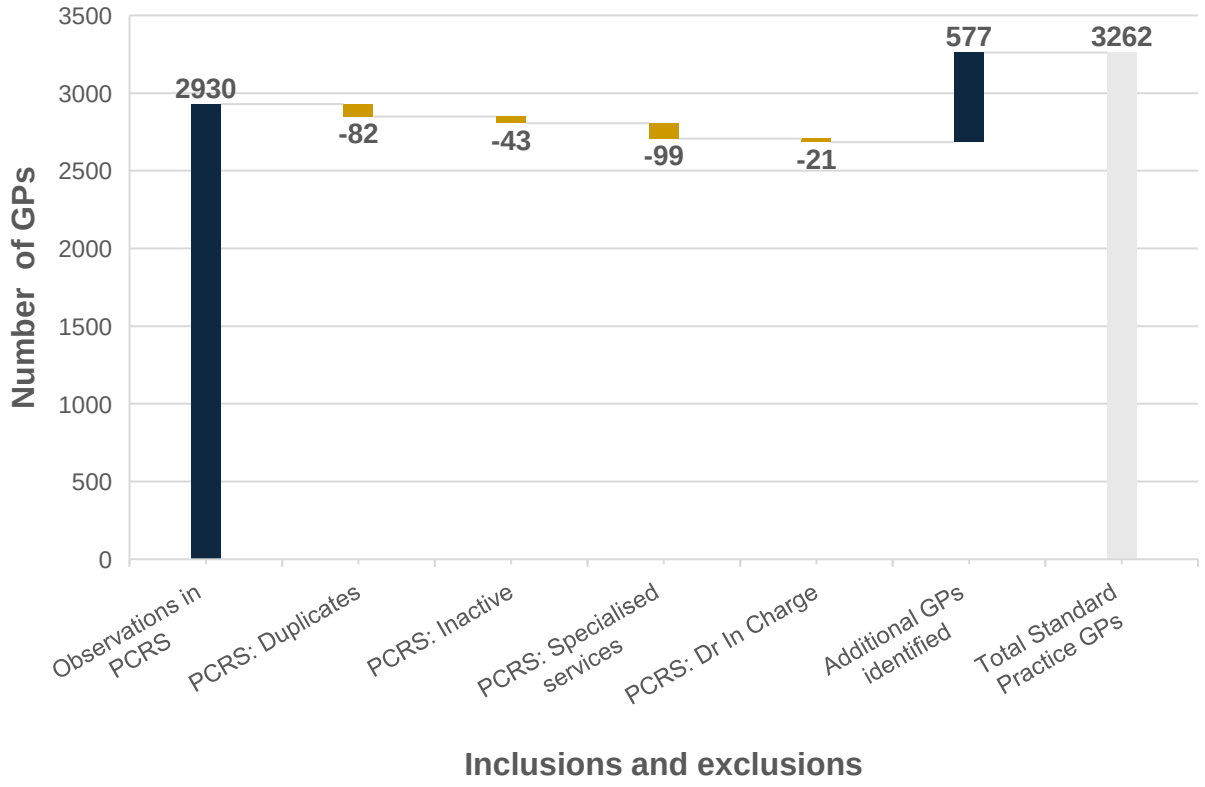
2.1.1.2 Drivers of variance. Many factors affect the above estimates, for example GPs can be:

- Clinically active or not,
- Active in Ireland, abroad or both,
- Primarily working as GPs or in other roles
- Working primarily in general practices, speciality or out-of-hours services, or as locums
- Providing entirely public, private or a mix of services
- Newly registered or have an established registration

2.1.3 Estimation of "standard" GP numbers. Data is taken from the HSE Primary Care Reimbursement Service (PCRS), and through scraping the HSE "Find a GP" service and practice websites. Following cleaning and validation of the data, there are an estimated 3,262 GPs in Ireland that provide general practice services that are broadly available – that is, clinically active, qualified, Ireland-based GPs who are not constrained to out-of-hours or specialist services and are likely available during some to most standard working hours (with morning and afternoon sessions between Monday and Friday) to provide standard general practice services to the general public. Effectively GPs that a citizen would think of as "their" GP with whom they are registered for routine care. Throughout this paper GPs providing these "standard" services are referred to as "**Standard GPs**" with "Standard GP services" implying the above. This definition and figure

*The 3,262 GPs considered in this note cover GPs with whom it is likely a patient can register for standard, day-to-day general practice services – excluding, for example, GPs working as locums and those in specialist services. Throughout this note GPs providing these "standard" services are referred to as **'Standard GPs'**.*

Figure 2.1 Waterfall chart of the process for identifying clinically active, standard GPs in 2022



Data drawn from PCRS, HSE Find Your GP, and GP websites in summer 2022.

excludes some GPs who provide important general practice and other services, including ensuring continuity of services through locuming and broad access for some groups (such as people who are homeless, students, and people who seek services related to addiction, domestic violence and sexual health). In some parts of this paper, the number of GPs is further constrained to those who currently hold a HSE contract – as a proxy for the GP population willing to provide publicly funded services. Figure 2.1 shows the inclusion and exclusion criteria used to deduce this figure, including possible reasons for the gap between this estimate and the estimates of other organisations.

2.1.4 Methodology for estimating GP numbers. At a base level, 2,930 observations of ostensible GPs are extracted from PCRS in June 2022 – this database includes GPs with current or former HSE contracts. For these 2,930 GPs, there is complete information across PCRS datasets on panel, contract, and contact information. Observations with significant missing data, typically an ID number with no other information, are not included in this figure. 82 persons and non-persons appear in the dataset as duplicates. For example Dr Jane Doe is associated with a practice and Dr Jane Doe

(Locum) is associate with a nearby practice. Here, some GPs work across multiple sites – particularly in rural areas – or temporarily hold more than one panel as the transition between staff takes place. It is also common for "Doctor in Charge" to occur repeatedly as an administrative function for some panels. There are 30 panels of public patients where no identifiable person is associated with the panel – in these cases, there is some evidence that locums, sometimes a single locum over a long period, are covering these panels. These arrangements may indicate a de facto salaried GP position is in place. For persons with partially missing data, their active status as clinicians was investigated with 43 flagged as having recently retired or left clinical practice. A further 99 GPs are identified as providing non-standard, specialised services – for example in family planning clinics, domestic abuse shelters, and addiction treatment centres. While these GPs provide important services, they are not available for the type of "standard practice" outlined above. Thus, 2,685 GPs from the PCRS database were retained in the sample, about a 10% reduction on the raw numbers.

"The estimate of 3,262 GPs is inherently uncertain, drawing on multiple data sources across 2022 and prone to sample selection arising from the use of practice websites to validate the data. However it represents a well-grounded, geographically identified estimation of supply."

To gain a view on GPs who are not in the PCRS database, the HSE's Find Your GP database and 400 general practice websites were scraped. This step identified 577 additional GPs who are not in the PCRS database and for whom there is evidence of current clinical practice. The estimate of 3,262 GPs is inherently uncertain, drawing on multiple data sources across 2022 and is likely subject to sample selection bias arising from the dependence on online footprints to identify private GPs. However, it represents a well-grounded, geographically identified estimation of supply that broadly aligns with estimates derived from other approaches, and a starting point for improved data collection and monitoring.

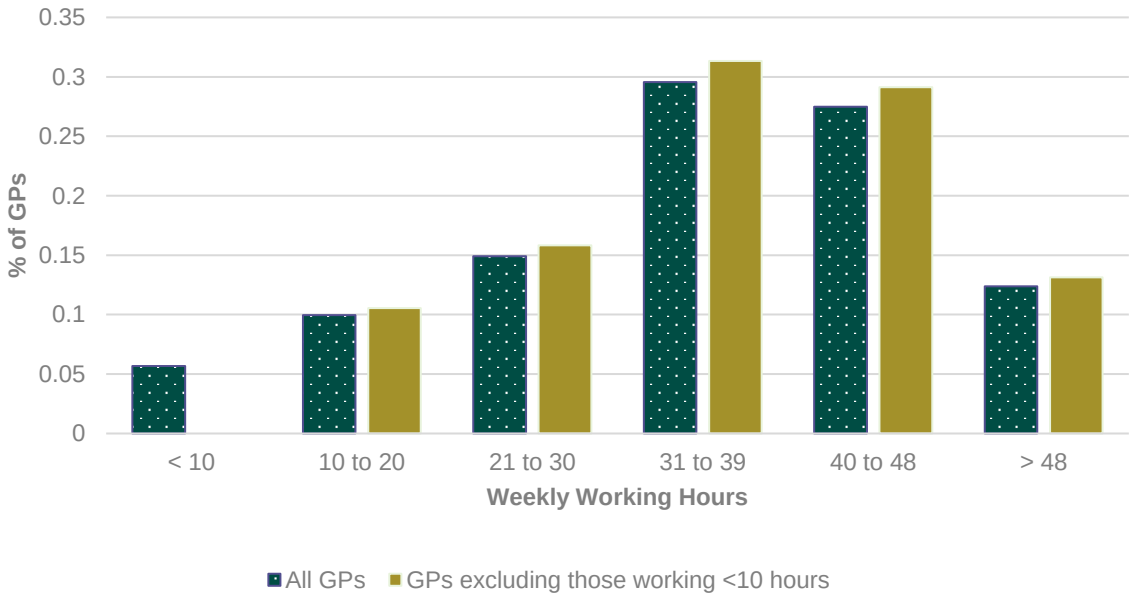
2.1.5 Working hours of GPs. Figure 2.2 shows that across re-registering[1] GPs, the medical council reports that 31% of GPs work under 30 hours per week. Removing GPs working fewer than 10 hours per week, who may be more likely to not be Standard GPs as defined in the last section, 27% of the population of GPs work under 30 hours per week. 29% of GPs report working 40 to 48 hours per week,

"42% of GPs work 40 hours per week or more… The current workforce is augmented by approximately 3.7% to 6.5% through overtime of Standard GPs."

[1] The Irish Medical Council share that there are 4,257 doctors in 2022 who list their primary occupation as general practitioner on renewing their registration with the council. They highlight that the speciality of a doctor is not recorded when they first register and thus this figure may be an under-estimate of the total number of general practitioners on their register.

with 13% working more than 48 hours per week. Setting a mid-point for hours worked and using the full set of GPs reported by the medical council, the average working hours of GPs are 34.5 hours per week. This increases to 36.3 hours per week when those working fewer than 10 hours are excluded. Notably, 42% of GPs work 40 hours per week or more – the hours used here to indicate a whole-time-equivalent (WTE). The distribution of working hours within the intervals shown in Figure 2.2 below is not known – however hours worked above those of a WTE indicate that the current workforce is augmented by approximately 6.9% (with an estimated range of 4.7% to 9%) through overtime work in the current workforce. Where a limit of 48 hours as a working week is used, the current workforce is augmented by 3.7% (with a range of 2.4% to 4.9%) through overtime. A caveat on this analysis is that working hours could incorporate working time outside standard general practice, for example in research or specialist services.

Figure 2.2 Distribution of GP working hours



Data source: Medical Council of Ireland, 2022.

2.1.6 Whole-Time-Equivalent (WTE) GPs. Health workforce statistics are typically reported in terms of whole-time-equivalents (WTE). Here, working hours are adapted to represent the proportion of a full working week that a person works and is capped at 1 for a standard working week (40 hours). Table 1 shows the workings for a WTE multiplier that is applied to the estimate of the total number of GPs. For example, where a GP works between 10 and 20 hours per week

The number of Standard GPs in Ireland contracts by 16% when considered in whole-time-equivalent terms.

the midpoint of 15 hours is selected (column 1). For a full-time working week of 40 hours, 15 hours represents 38% of a full working week (column 2). Depending on the approach taken to Medical Council working hours data, between 10% and 11% of GPs work 10 to 20 hours per week (columns 3 and 4). Then to estimate the average proportion of a full working week worked by GPs in Ireland, a function of products f is used as follows:

$$WTE\ Multiplier = \sum_{\substack{Hourly \\ Interval}} f(Portion\ of\ week\ worked, \%\ of\ GPs\ with\ those\ hours)$$

For Standard GPs, the products of column two and column four are summated such that the average portion of a working week worked by GPs is shown to be 0.84 Thus while there are 3,262 individuals working as GPs we estimate, the restricted multiplier of 0.84 indicates that there are 2,740 whole-time-equivalent GPs active in Ireland. Thus, the number of Standard GPs in Ireland contracts by 16% when considered in whole-time-equivalent terms.

Table 1 Whole-time-equivalent (WTE) multiplier for GPs

(1) Weekly Working Hours (Midpoint)	(2) % of Week Worked	(3) % GPs	(4) % GPs^{R}	(5) % Week X % GPs	(6) % Week X % GPs^{R}
< 10	12.5%	6%	0%	0.01	
10 to 20	37.5%	10%	11%	0.04	0.04
21 to 30	65%	15%	16%	0.10	0.10
31 to 39	87.5%	30%	31%	0.26	0.27
40+	1	40%	42%	0.40	0.42
WTE Multiplier (sum of column)				0.80	0.84
Total GPs (3,262 base)				2,610	2,740

Based on 2022 Medical Council data on the distribution of working hours in GPs. (R) is the restricted number of GPs – based on the assumption that GPs with fewer than 10 working hours per week are not Standard GPs as defined in section 2.1.3

2.2 HOW MANY GENERAL PRACTICES ARE THERE?

2.2.1 The number of general practices. Address information associated with the GPs identified in the previous section is used to examine the total number of general practices. There are 1,451 standard general practices in 1,404 unique locations. The disparity between practices and locations arises as in some cases more than one GP practice operates on the same site – most commonly in primary care centres. As such there are 2.25 to 2.32 GPs per practice or practice location.

> "There are 1,451 general practices in 1,404 unique locations… there are 2.25 GPs… per practice"

2.3 HOW MANY GENERAL PRACTICE NURSES AND MIDWIVES ARE THERE?

2.3.1 Population of Practice Nurses and Midwives. The HSE reports in 2024 that there are 1,200 GMS funded practice nurses and midwives. In 2022, 2,240 nurses and midwives registered with the Nursing and Midwifery Board of Ireland registered with a General Practice Nurse or Midwife title (here "GPNM") such as Practice Nurse, Practice Midwife, Practice Nurse/Midwife, GPN or GP Nurse (Correspondence with Nursing and Midwifery Board of Ireland, 2023). Of these, it is known that 2,214 are currently practicing and 2,210 are practicing in Ireland – however the interaction of these two variables is not known. As a result, we take an estimate of 2,200 GPNM who are active in Ireland, with 55% associated with GMS funding. In 2016, the estimated WTE was 1,400 (Capacity Review, 2018). Using an assumption of 1,850 clinically active GPNM in 2016[2], this implies a 24% contraction when converting persons to WTE – a slight increase on the 26% contraction that can be estimated based on a 2005 INO survey of

> *"We estimate that 1,664 WTE General Practice Nurses and Midwives (GPNMs) were active in Ireland in 2022"*

[2] An average based on a 2020 statistic of 2,000 available on irishpracticenurses.ie on 10 February 2023 and a 2012 statistic of 1,700 reported by the Irish General Practice Nurses Educational Association here)

working hours in practice nurses (INO, 2005). Thus carrying over this 24% contraction we estimate that 1,664 WTE GPNMs were active in Ireland in 2022.

2.3.2 Sample of GPNM from the Cervical Check Register. GPNM are privately employed and do not hold direct contracts with the state and thus administrative data is limited. In this exercise we employ data from the public register of Cervical Check – Ireland's National Cervical Screening Programme – to consider a large sample of GPNM. 91% to 94% of GPs and GPNMs assert that cervical smears (Bury, Twomey & Egan 2020) are part of the scope of the role. Therefore, the dataset is likely representative of this group given exclusions in this work for GPNM working in non-standard general practice settings (e.g. women's health clinics) and practices that do not hold any private contracts. Here, 1,724 GPNM in standard general practice settings are observed – 78% of the estimated population. These GPNMs are found in 965 of the general practice settings observed here with an average of 1.79 GPNM per practice. This data scraping is employed to geographically assign GPNMs on a practice-basis throughout this paper. In this analysis, WTE GPNMs are drawn from this database, with a uniform revision downwards in numbers by practice to reflect that national WTE is 96.5% of the population observed in the Cervical Check database. Similarly, when the total GPNM population is considered, there is a unform revision upwards by a factor of 1.28 to reflect the total GPNM population of 2,200. This introduces bias: for WTE we do not know that working hours are distributed evenly across geographies and for the total working population we do not know if the missing GPNM from our database are distributed evenly. This figure also does not align with standard practice as we consider it here as it captures GPNM working in other types of settings as well.

2.3.3 Other general practice staff. Data on other general practice staff, including practice administrators, managers and Health and Social Care Professionals (HSCPs) is not available. This is a significant limitation in how the evidence in this paper can be used to inform policymaking.

2.4 WHAT IS THE FREQUENCY OF GENERAL PRACTICE SERVICE USE?

2.4.1 Consultation data from Healthy Ireland. There is no national administrative data source on general practice service use. As such, survey data from the Healthy Ireland surveys is used to estimate the frequency of general practice use. Average annual visit rates are available based on age, gender and "card status" (whether the respondent has a medical card or GP visit card) with variance across these characteristics. Nationally, there is also significant variation between medical and GP visit card holders. However, owing to sample size restrictions, medical and GP visit card holders are pooled for this analysis. Figures 2.3 and 2.4 show GP, GPNM, and combined visit rates from 2015 to 2023. No survey took place in 2020 due to COVID-19 and

There is no administrative data source on GP demand or use, so survey data is used for adjustments for complexity based on available information from the literature.

where there is no data point, the relevant question was not asked in the survey for the given year. The age groups have been selected to reflect those that PCRS uses to record GP panel data. To correct for the small sample size for the 65-69 age groups, the sample has been widened to include those aged 60 to 74. Despite this, some cohorts like women aged 65-69 seeing GPs privately are too small a sample to produce reliable results. Given the lack of alternative data sources, we nonetheless employ these figures. On a population level the impact of this potential bias is minimal; however, statistics on the 65 to 69 year group detailed in this analysis should not be employed in isolation.

2.4.2 Consultation levels after the pandemic: adults in mid-life. For women aged 15-44, regardless of card status, GP visits in 2023 have reverted to pre-pandemic (2019) levels with an increase in GPNM visits shifting the combined visits upwards. This is the case for most cohorts with a few exceptions. Comparing 2023 estimates with 2019, cardholding men aged 15-44 show a drop in both GP and GPNM visits. On average, this cohort has one less GP visit and a half GPNM visit less in 2023 than in 2019. For cardholding men aged 45-64, there is a drop in GP visits but an increase in GPNM visits. Exploring the trends in self-reported health for these cohorts using Healthy Ireland, we find that there is no significant change in the percentages of those that reported both good and bad health, those that smoked regularly, and those that have a long-standing illness. So, with no significant change in their general health and affordability not being a barrier, these cohorts may be engaging with general practice less in 2023 because of an attitude and perception change during the pandemic about going to the GP that resulted in slightly lesser use of general practice, or there could be changes to the model of care where GPNM are more involved in this cohort's care.

2.4.3 Consultation levels after the pandemic: adults in older age cohorts. The 70+ cardholding age group is another exception with significantly less GP visits in 2023 than in 2019. That drop may be a legacy effect of the pandemic, where older people minimised their use of general practice, or the model of care shifted to fewer and longer visits. There may also be a bias in the Healthy Ireland survey itself as it moves from in-person to telephone interviews since 2021 – older people, men, and those with lower education may less likely to participate. Despite using weights to maintain representativeness, it may be that change in methodologies can potentially lead to unexpected changes in survey trends. Hence, caution must be exercised in interpreting and comparing pre and post-pandemic visit rates. We cannot know for certain what is causing changes in GP and GPNM visit rates but what is apparent in most cohorts is the increasing number of visits to the GPNM.The figures show consistently high GP visits across women of all cohorts except 70+, especially in the cardholding category. The increasing use of general practice for both GPs and GPNMs potentially reflect a shift in policy as well: with increasing contraceptive and screening access for women in particular, visits to general practice have risen to levels slightly higher than pre-pandemic levels. This trend is observed in the combined visits trend that aggregates GP and GPNM visits.

Figure 2.3 GP and GPNM consultation rates over time in people aged 15 to 64

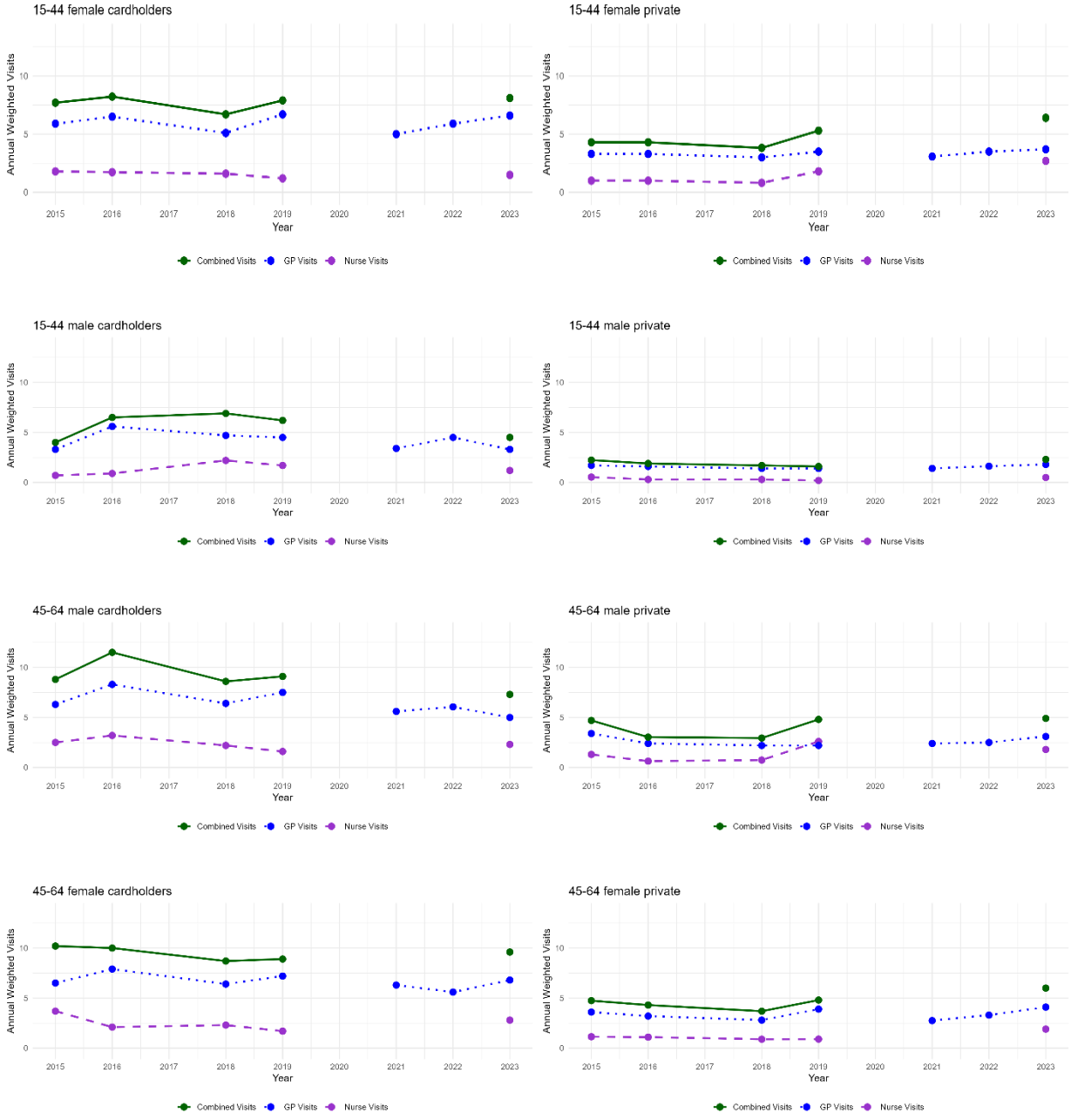
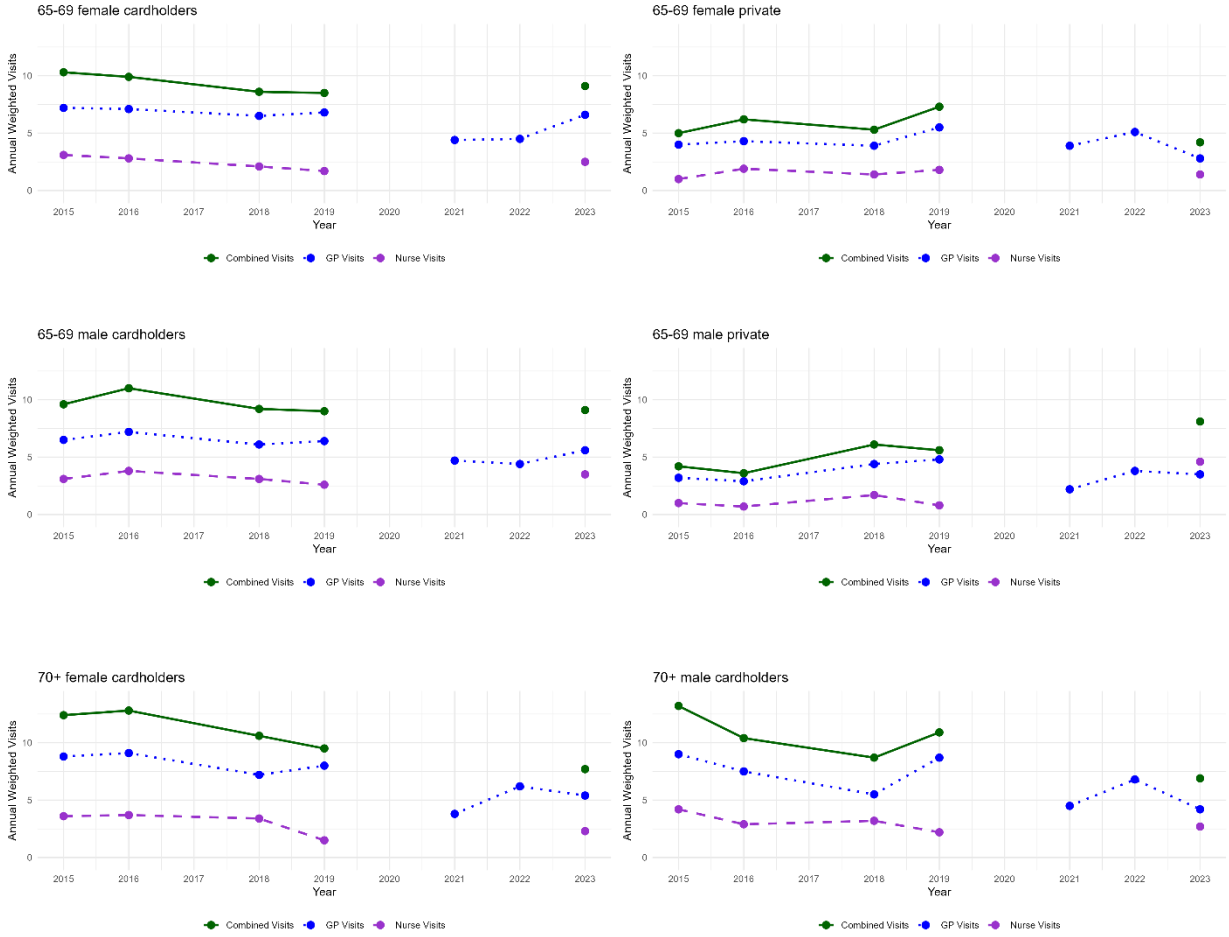


Figure 2.4 GP and GPNM consultation rates over time in people aged 65+



2.4.4 Consolidating data sources to get to population consultations. For subsequent analysis on national and regional GP service use, Healthy Ireland Wave 9 (2023) data is used. This allows us to avoid under-estimating current demand by using visit rates during COVID-19, while remaining close to the 2022 period used to generate GP figures. Panel data in PCRS – the list of medical and GP visit card holders registered with a GP – is available by age group and sex. Using Census 2022, we estimate private patients by subtracting panel numbers from total population figures. As a result of using these two different sources of data, some error arises: in some cases, panel numbers for a cohort exceeds the total population. At a national level, this error likely arises from the factors such as the retention of people on panels who are no longer resident in Ireland and those who are deceased. For national estimates, there are approximately 25,000 more people on GP panels than there are in the population in the age groups with 100% entitlement: 0-4 and 70+. This is a 0.5% increase on the known population. Regionally, it disaggregates into a surplus of population in some areas and a deficit in others. At a regional level, mobility is also likely a significant factor. We observe card holders at their GP's location but the census records the home location of residents. Individuals may live and avail of GP services in different areas. Mobility appears to be particularly high in cities where people can travel short distances to GPs in many geographic areas and thus the regional analyses of Cork and Dublin are less reliable than areas with lower population density.

2.4.5 National GP consultation levels. On a national level, we estimate approximately 18.7 million annual consultations with the GP with an average of 3.6 visits per person, 23 visits per GP, and 29 visits per WTE GP. Individuals with a medical or GP visit card saw the GP approximately 4.9 times every year whereas private patients had an average of 2.8 annual visits. These averages are approximately 10% lower than Healthy Ireland's estimates but variance from survey results is expected. This arises from the method used here which builds up to the national population from observed card holders in PCRS. Our national average estimate is 20% lower than other research estimates (Collins & Homeniuk, 2021). This variance could be arising from the different time periods the data was collected; while our estimates are from post-pandemic where demand for GP services is reverting post-shock, others are from before COVID-19. Furthermore, there is some evidence that patient-reported tele-health visits are lower than doctor-reported, which may distort comparison between these sources. This further supports the need for good quality administrative data on GP consultations.

There are 18.7 million GP consultations: 3.6 per person, 23 per GP and 29 per WTE GP. GP visit rates are stabilising.

2.4.6 *National GPNM consultation levels.* For GPNM, we estimate approximately 9 million annual consultations, with an average of 1.8 visits per person and 16 visits per GPNM. It is 17% higher on average relative to other pre-COVID research. The differences in how GP and GPNM visits have trended after the pandemic reveals the increasing importance of GPNM for general practice as more people rely on them for their routine care. It points to a potential shift in delivery of care during the pandemic with enduring effects for a bigger role in general practice for GPNM.

There are 9 million GPNM consultations: 1.8 per person and 16 per GPNM. GPNM visit rates are increasing.

In some cohorts, as seen above, where GP visits have not yet recovered to pre-pandemic levels, GPNM visits have increased. This suggests that where people used to go see their GP, some of that service usage may now be occurring with their GPNM.

2.4.7 Complexity adjusting consultations. It is not just the number of consultations, but the type and duration of consultations that vary – in particular by age. The differences in type and duration of a consultation can have significant impact on a GP's workload, for example a teleconsultation would exert less pressure on a GP's workload than a home visit. Average duration of a consultation by patient's age and sex is taken from international literature and scaled up to reflect the Irish context (Hobbs et. al., 2016, Pierse et. al., 2019, Crosbie et. al., 2020). The duration of a GP consultation increases with age and is highest in the 45-64 age group irrespective of sex. For estimating the breakdown of consultation types, the literature was consulted. With approximately 2.2% of all GP consultations being nursing home and home visits, we estimate that, given the paper's national average, a GP has around 3 home visits every week. Extrapolating from the breakdown of an average GP's daily time use, we estimate that an average house call lasts 26.6 minutes minus journey times. Journey times are then added using CSO information on average journey profiles and regional distances to the GP. The duration of an average teleconsultation was estimated to be approximately 10.4 minutes, using international literature and stakeholder feedback. Thus, survey data is adjusted for time-use by patient characteristics to examine a somewhat complexity-adjusted view of GP consultations. Given the absence of data and literature, similar analysis for GPNM was not possible. On a national level, there are 19 million complexity-adjusted GP consultations – an approximate 2.4% increase from standard number of GP consultations. Average visits to the GP rise from 3.6 to 3.7 per year.

There are 19 million complexity-adjusted GP visits, taking into account home visits and varying duration in demographic groups.

2.4.8 Unmet need. The analysis here concerns service use, not service need or true demand. Healthy Ireland Wave 5 (2019) estimates that of the people who needed to see a GP and didn't, 19% did not attend because they couldn't afford it. GP and GPNM visit rates and subsequently, the consultation estimates do not consider unmet need. Rather, they present a picture of general practice service usage as it currently exists without a view on what service usage can look like if all barriers to it are taken away, including affordability and waiting times.

Estimate here do not account for unmet need and time-use outside consultations.

2.4.9 Time-use outside consultations. The complexity-adjusted consultation load highlights GP time use as it relates to clinical consultations. We acknowledge that other activities may exert pressure on GP's time including clinical paperwork and administrative work. Here, we only consider consultations because of a lack of data on factors, other than clinical consultations, constraining GP capacity.

2.4.10 Out-of-hours and non-standard consultation. Due to lack of data availability, we do not consider how consultations look like in out-of-hours and the extent to which non-standard consultations occur.

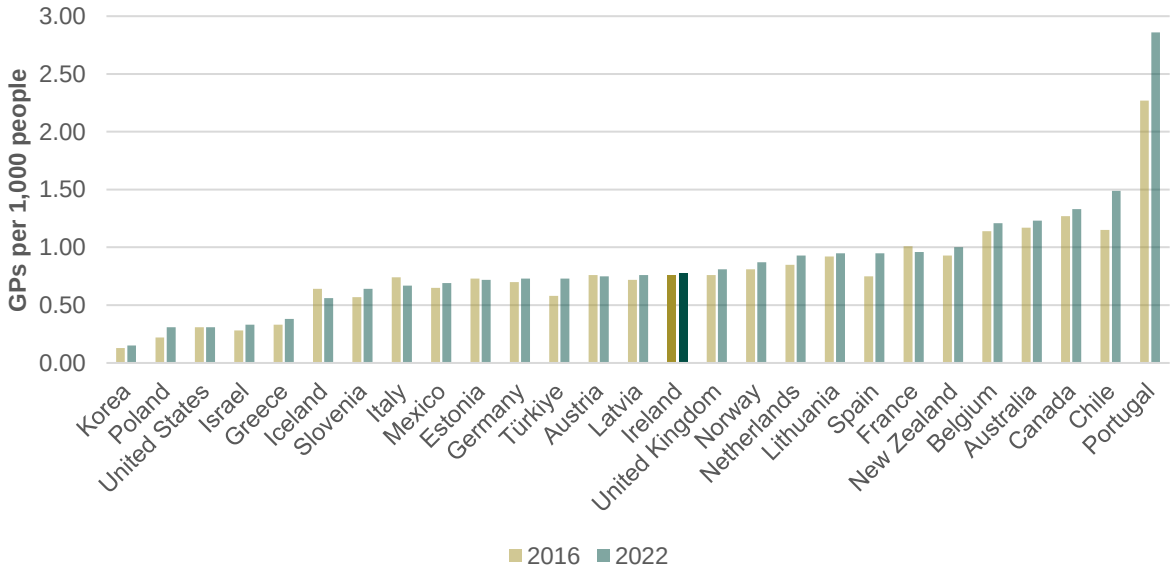
2.5 HOW DO WE COMPARE INTERNATIONALLY?

The OECD draws on Medical Council and ICGP data over time with the definition differing over time for Ireland and in how the statistic is composed relative to other countries. As such the knowledge that Ireland is 12th to 13th over time relative to other OECD countries (see figure below) is heavily caveated. The benefit of international comparison is in helping us to understand if we have the "right" number of physicians relative to our population's needs. However, a comparison of physician numbers needs to be contextualised with information such as:

- Population demographics – older and sicker people typically require more care
- Health system characteristics – is the GP the gatekeeper to other services?
- Primary care characteristics – what is the role of GPNM, pharmacists, Health and Social Care Professionals (HSCPs) and others in the management and delivery of care?
- General practice characteristics – what are the working practices of GPs?

As such, we focus here on national discussion rooted in consultations, which allow for many of these factors to be considered.

Figure 2.5 Comparison of GPs per 1,000 persons across the OECD



Source: OECD Health Employment and Education Statistics. Practising Physicians by Category: General Practitioners. Reported countries restricted to those with data available at both timepoints. The OECD reports data from the Medical Council and ICGP.

3. Characteristics

3.1 PUBLIC PROVISION OF GENERAL PRACTICE SERVICES

In this section

The population of GPs and general practices with HSE contracts, the drivers of contract uptake, the response of GPs to public contracts under economic uncertainty, and the risk of duplicate payments under the public-private provision model.

3.1.1 HSE contracts – headcount. PCRS data contains information on how many contracts are held by "GPs". This can be thought of as an account: each account is associated with an address as well as information about different contracts associated with that account, including details about public panel size and payments made based on the account's contracts and panels. In most cases an account is linked to a single, identifiable GP. However, for 104 accounts, there is no single, identifiable GP associated. In these cases, contracts may not be associated with identifiable individuals (e.g. the account holder is listed as the practice name), rather a GP holds contracts across multiple practices, or a GP may hold more than one account in the same practice. Thus there are more accounts related to contracts than there are observable GPs. Here we consider all contracts in standard general practices.

There are 2,772 contracts. Of these:

- There are 2,508 general medical services ("GMS") contracts under capitation terms – that is, contracts associated with a panel of patients who hold a medical or GP visit card.
- There are an additional 15 contracts on older fee-per-item terms or related to work as a district medical officer. These contracts are also associated with public patient panels.

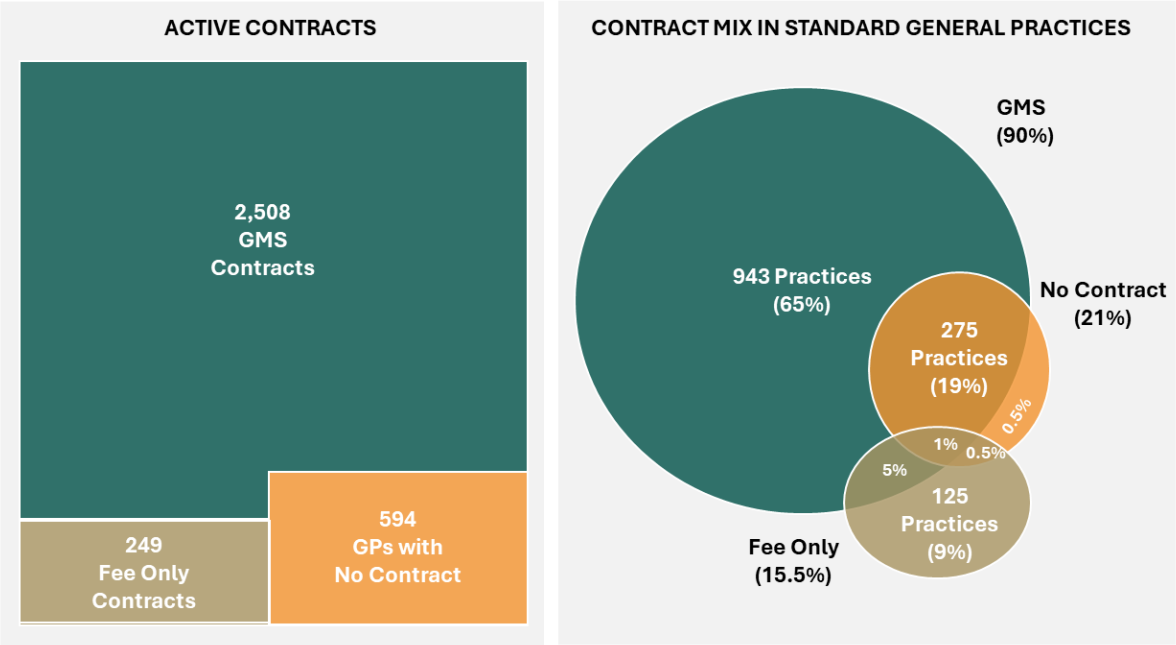
- There are 249 “fee-only” agreement related to other contracts such as the National Cancer Screening Service where the holder does not also hold a GMS contract. [3]
- There are 594 identified GPs who do not hold any HSE contract.

3.1.2 De facto practice-based contracts. There is some indication that some GPs may not hold a given HSE contract administratively but could be providing the services through a de facto practice -based contract. This theory arises as many practices indicate that services are provided by all members of the workforce while contract visibility shows only a subset of GPs actually hold the relevant contracts. For example, GPs A and B operate from the same practice. A holds a set of HSE contracts and B holds none. B provides care to a pregnant patient in the mode ascribed under the Maternity and Infant Care Scheme and could potentially be recuperating costs through A’s contract. Thus, the headcount listed here may actually represent a lower bound for the available workforce delivering care under these contracts. The likelihood of this practice is further reinforced through the contracts held by holding accounts in the PCRS database. This peculiarity within multi-GP practices may represent a means for ensuring continuity of care during periods of workforce fluctuation and/or a workaround to the administrative burden of public care provision. Furthermore, in some cases, a GP works across more than one practice and holds more than one GMS contract, particularly in more rural areas. Formalising any de facto practice-based contracts may allow for better visibility of the actual supply of services while reducing transaction costs for the health system.

Some GPs may not hold a given HSE contract administratively but could be providing the services through a de facto practice-based contract in an effort to reduce administrative burden. Formalising any de facto practice-based contracts may allow for better visibility of supply and reduction in transaction costs across the market.

[3] These contract types are where the majority of contraction occurs from the raw PCRS database as holding accounts (e.g. “Doctor in Charge” or the practice name is used instead of a GP’s name) and accounts related to specialist services are removed.

Figure 3.1Contract distribution and contract mix in practices



GMS includes 2,508 standard GMS contracts and the 15 non-standard GMS contracts.

3.1.3 GMS contracts – by practice. From surveying GP websites, many practices appear to offer GP services to medical card and GP visit card holders from all GPs in the practice even where there are fewer contracts than practitioners. This practice was further supported on consultation with GP stakeholders. As such, it could be the case that while a contract is associated with a single GP it is actually a de facto practice-based contract. Based on this, the GP population available to provide public services could be greater than the number of contracts. The figure shows the contract mix associated with observed general practices. 90% of general practices (1,307) hold at least one GMS contract, with all observed GPs holding a GMS contract in 65% of practices. 187 GPs operate in the 144 practices where these is no GMS contract. There are only 10 observed practices with no HSE contract of any type covering 24 GPs.

90% of all general practices hold at least one GMS contract. While 594 GPs do not hold a HSE contract in their name, only 10 observed practices hold no HSE contract at all.

Table 2 Contract uptake among 'Standard' GPs (June 2022)

	Practices		GPs & HSE Accounts		
Total	**1451**		**3262 (Unique, identifiable GPs)**		
Non contractors	**10**		**594 (Unique, identifiable GPs)**		
HSE accounts	**1441 (at least one)**		**2772 (Not all unique, identifiable holders)**		
Accounts with the following contracts:	**Practices**	**% All Practices**	**Accounts**	**% All Accounts**	**% Accounts & Non Contractors**
Maternity & Infant [PU]	**1341**	**92%**	**2425**	**87%**	**72%**
GMS [PU]	**1307**	**90%**	**2508**	**90%**	**75%**
Under 6 [PU]	**1286**	**89%**	**2469**	**89%**	**73%**
National Cancer Screening [P]	**1286**	**89%**	**1858**	**67%**	**55%**
Modernisation [PU]	**1277**	**88%**	**2473**	**89%**	**73%**
Chronic Disease [PU]	**1179**	**81%**	**2343**	**85%**	**70%**
Childhood Immunisation [P]	**1100**	**76%**	**1769**	**64%**	**53%**
Opioid Substitution	**1009**	**70%**	**1666**	**60%**	**49%**
Termination of Pregnancy	**273**	**19%**	**393**	**14%**	**12%**
Rural Practice	**236**	**16%**	**243**	**9%**	**7%**
Heartwatch	**220**	**15%**	**259**	**9%**	**8%**
Other contracts	**3 – 71**	**0% - 5%**	**3 - 76**	**0% - 3%**	**0% - 2%**

Other contracts concern former District Medical Officers, dispensing, the Health Amendment Act and the legacy Doctor Visit Card.
[P] Contracts with a large population impact. [U] Contracts with a high level of uptake.
Data is from July 2022 and thus uptake for newer contracts, such as Chronic Disease Management and Termination of Pregnancy, have likely increased since.

3.1.4 HSE contracts – by account and practice. Table 2 shows the head-count for all contracts. Most GPs hold multiple contracts: typically GMS and other contracts with a high population impact such as the under 6 contract and the GP modernisation agreement. Some contracts, such as for rural practices, only apply to GPs under specific criteria. Year of introduction of a contract likely has some impact on uptake – for example the opt-in for CDM contracts is 5% lower than that of Under-6 contracts – the CDM contract was introduced five years after the under 6 contract which may be a factor in the disparity. The Health (Regulation of Termination of Pregnancy Act) is from 2018. The distribution of contracts across individuals and across practices provides further evidence that de facto practice-based contracts are likely quite common. A scheme such as that for the National Cancer Screening Service (NCSS) has high population impact and thus high uptake would be expected. At a GP level, uptake is only 55% to 67%. However 89% of practices have at least one National Cancer Screening Services Contract – in line with uptake of the largest contracts such as GMS and the Under 6 contract. Policy colleagues note no reported access issues for schemes such as the NCSS and thus de facto practice based contracts seem to be active.

Low individual uptake of some contracts masks high uptake at a practice level, indicating that de facto practice-based contracts are likely active.

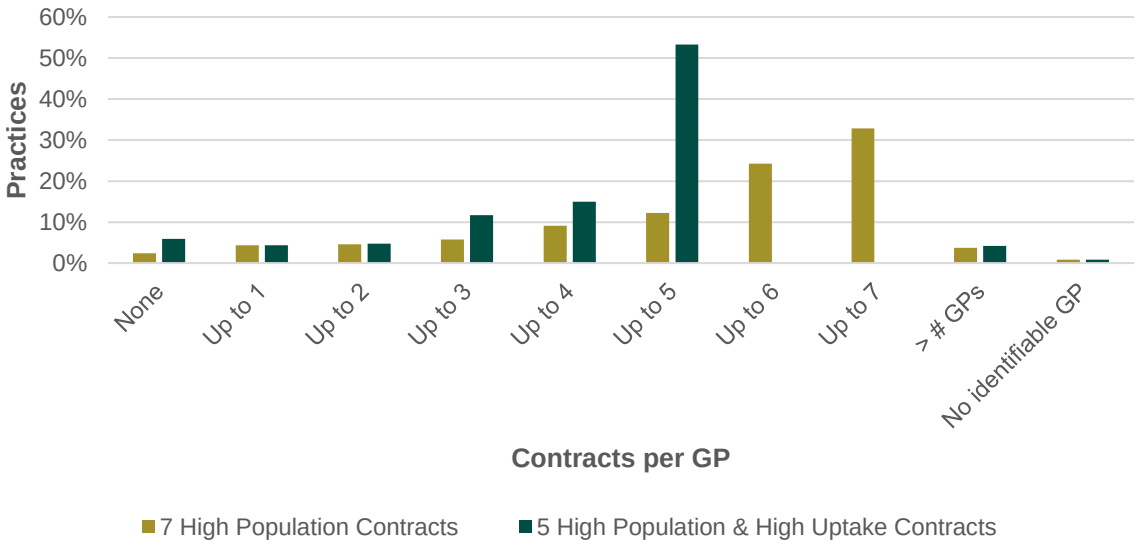
3.1.5 Prevalence of De Facto Practice Contracts. To shed light on de facto practice contracts, we consider contracts with high population impact and high uptake. The GMS, Maternity and Infant Care Scheme, Under 6, GP modernisation, and Chronic Disease Management programmes will affect a large section of the population in any geographic area. If contracts were executed generally on an individual level one would expect any GP who engages with some of these contracts to engage with most-to-all of them (except new contracts and ones with specialist skill). In turn we would generally expect all the GPs in a practice that engages with public work to have all of these contracts. Instead, we find that in 57% of practices, GPs appear to have their own individual contracts for these common services. In 6% of practices, none of these contracts are in place, perhaps indicating a practice largely engaged with private or more specialised work (for example National Cancer Screening Services is a contract that singularly occurs for many of these practices). Those that remain – 36% of general practices – have a contract administration structure that indicates some likelihood of de facto practice contracts. When the analysis is expanded to include the National Cancer Screening Services and Primary Childhood Immunisation, de facto contracts become more evident again. Here about 37% of practices appear to administer contracts on a GP basis, with 61% of practices appearing to have a practice-based administrative approach for at least some contracts.

Depending on the type of contract, it appears that between 36% and 61% of general practices likely administer contracts on practice, rather than individual GP, basis.

3.1.6 Rationale for practice-based contracts. For the GMS contract, where some payments are capped at 100 patients on a panel – but more commonly 1,200 to 1,500 patients, it would be financially beneficial for a GP practice to set up a new contract under a GP in the practice who does

not have a GMS contract when the panel for the first GP exceeds contract caps. Where this does not occur, the implication could be that the administrative burden is not worth the added remuneration. Alternatively or additionally, understanding of how the caps operate could be poor in some practices. We identify 406 practices where a GMS panel held in the practice has more than 1,200 patients. In 146 of these practices, there is another identified GP in the practice who does not hold a GMS contract. An increase in payments related to contracts could potentially be derived by these practices from splitting the patients listed with the practice via a single contract over two contracts. However, we do not know important contextualising information about why a contract is not held by this apparently "available" other GP – they could work only a partial week, for example, which would prevent them from taking up a contract. In general, a practice-based contract may be more desirable to consider to minimise administrative burden on practices and reflect more accurate contract uptake.

Figure 3.2 Number of major contracts held by HSE contracted GPs



High Uptake contracts include GMS Capitation, GP Modernisation, Under 6, Maternity and Infant, and Chronic Disease Management. High Population Contracts include these five contracts and contracts for the National screening Service and Primary Childhood Immunisation Scheme (with these latter two contracts having relatively lower uptake on an individual GP level). Where the number of contracts per GP exceeds 5 or 7 (depending on the number of contract types examined), this appears to typically arise because a GP holds two GMS panels in the same practice or because of the presence of administrative accounts that are not linked to any identifiable person.

3.1.7 GPs with HSE contracts – patterns in contract holding. Four out of five GPs who engage with high uptake contracts – GMS capitation, GP Modernisation, Under 6, Maternity and infant and CDM - take up all those contracts. As could be anticipated from the contract uptake figures, non-uptake of the Maternity and Infant and CDM contracts explain most of the variance. 6% of GPs that hold a HSE contract do not take up any of these contracts. Again, GPs working in non-standard services

(e.g. addiction treatment, family planning clinics etc) are excluded from this count. However, even examining standard general practice services, engagement with the national cancer screening and the opioid substitution services drive GPs with little other contractual engagements with public service into visibility.

3.1.8 GPs with HSE contracts – estimation strategy for correlations with contract holding. We model a number of contract scenarios using available practice and socio-demographic information

1) The odds that a GP holds any HSE contract
   Among contract holders:
2) The odds that a GP holds a GMS capitation contract
3) The odds that a GP holds an under 6 contract
4) The odds that a GP holds a NCSS contract
5) The odds that a GP holds a Termination of Pregnancy contract
6) Drivers of the number of high uptake contracts held
7) Drivers of the number of large population impact contracts held
8) % Disadvantaged - % of the CHN population who are disadvantaged
9) % Mid Affluence - % of the CHN population who are above and below average
10) % 70+ - % of the CHN population who are aged 70+
11) % <6 - % of the CHN population who are aged under 6
12) % Bad/Very Bad Health - % of the CHN population reporting they are in bad or very bad health
13) % Car Commuters - % of persons in the CHN who commute to work by car (as opposed to public transport, on foot, bicycle, etc.)

Practice characteristics (GP Practice, HSE Estates, PCRS)

1) PCC Based – GP's practice is located in a primary care centre (PCC)
2) Health centre based – GP's practice is located in a HSE health centre
3) Practice size – The number of GPs active in the GP's practice
4) Contract age; Contract age^2 – For GPs with a HSE contract, the time since their first contract was established. It is squared to reflect potential non-linearity - newer contract holders may take time to increase the range of contracts they hold while older contract holders may be divesting contracts with age.
5) GMS panel – A categorical variable indicating no panel, a panel under 50 (indicating GPs who are typically onboarding or leaving the GMS contract) and those with a panel over 50 (established GMS contractors).

Models were fit under first setting out the rationale for the model fit, then using the Bayesian Information Criteria (0.01 change to R^2 or Pseudo R^2 used as the qualifying threshold for inclusion) to fit the model. For binary outcomes, logit models are used with OLS employed for count variables.

Standard errors are adjusted for clustering at an Eircode key level. We consider the models with and without information on the GP's GMS capitation status – this allows us to consider the relationship between contract uptake in GMS holders where there is some evidence that they may be entering or leaving the system.

3.1.9 GPs with HSE contracts – correlations with contract holding. The available factors do not allow for a model that explains a large amount (>70%) of the variance we see in contract uptake, GMS capitation contract uptake, or uptake of the NCSS and Termination of Pregnancy contracts. There are high levels of correlation in two-way models between most of the factors outlined and these outcomes. The exceptions are that only practice size and location in a primary care setting are strongly correlated with the Termination of Pregnancy contract uptake.

- The **health status** of the local population is not generally correlated with contract uptake (though of course the health status of each GP's patient list is not observed).
- In terms of deprivation in the community, deprivation itself is not a strong predictor of any contract outcomes examined. Rather, local **affluence** is associated with decreased contract uptake for all outcomes.
- The response to the age dependency of communities was inconsistent. Generally, an older population is correlated with higher levels of engagement with public provision as hypothesised – however the results are inconsistent enough that major conclusions cannot be drawn.
- A large under 6 population is largely uncorrelated with contract uptake with the exception that, holding other factors constant, it is negatively correlated with uptake of the **under 6 contract**.
- In terms of **competition**, the number of GPs per capita in the local area generally has a significant positive effect on contract uptake but a small effect size.
- **Urbanity**, reflected in car commuters in the population, has large and consistent correlations with uptake outcomes. This indicates that contract uptake increases as car commuting increases – likely in rural but also smaller urban areas.
- **Practice size** is significantly positively correlated with almost all uptake outcomes.
- Being based in a **health centre or primary care centre** is generally not strongly correlated with contract uptake – with the exception of the under 6 contract which is significantly correlated with GPs based in primary care centres.
- **GP contract age** appears to have a polynomial relationship with the high uptake contracts – with lower uptake among those who are younger and older and higher uptake in GPs in the middle of their careers.
- Unsurprisingly, engagement with the GMS capitation contract is a very strong predictor of engagement with other contracts – with some indication that while people with very small panels are still more likely to have other contracts overall, the correlation is not as strong.

3.1.10 GPs with HSE contracts – drivers of contract uptake. Thus, in general, there is an indication that contract uptake is largely a function of the stage of their career that a GP is in with established GPs having high levels of participation. GPs engaging with more modern modes of practice such as large and multi-disciplinary working practices are also more likely to engage with public work, though this could be a function of their agreements when offsetting capital risk with the state. Public contract uptake is lower where there may be a higher willingness to pay (and lower eligibility) in the local population. For public service planning, it may already be an issue or an issue could arise in terms of supply of public services to eligible persons in areas with relatively large child populations and in urban centres – areas that are negatively correlated with contract uptake.

Engagement with HSE contracts is largely a function of the stage of career that a GP is in – they have fewer contracts when they are entering and leaving their careers. However, public provision issues may arise in urban areas, areas with lots of single-GP practices and areas with a large child population.

3.1.11 GPs with HSE contracts – case study on the under 6 contract. Of the ~300 GPs who do not hold an Under-6 contract, we have data on panel composition and contract uptake of 66 GPs. Of these, 25 have single-digit panel sizes indicating that they might be transitioning away from practising and 4 have contract start dates that predate 1990 which could mean that they are planning to retire soon and are, therefore, not interested in signing up for new contracts. Of the other GPs, 16 GPs have panels that comprise of over 40% of individuals over the age of 70 indicating that they might have a specialisation or focus in that demographic. Geographically, these GPs are predominantly based in Dublin meaning the uptake rate for Under-6 contracts for GPs with HSE contracts tends to be almost 100% everywhere else in the country.

3.1.12 Public contract uptake in response to economic conditions. There is a relatively stable supply of GPs engaging with HSE contracts over time, and with that an assumed rate of providers who do not engage with public contracts. A factor in considering the eligibility of the population to publicly subsidised care is whether GPs who do not engage with HSE contracts would be incentivised to do so as the private market is eroded. There is some evidence of GPs responding to lower ability to pay in the population and/or increasing unmet care needs. In 2008 as the economic conditions in Ireland worsened, 47 GPs – over half of whom are in Dublin – signed on for HSE contracts which have since been nulled despite their continued clinical activity. For contracts with other starting points, exit from clinical activity typically drives the dropping of contracts. Thus, there is some indication that GPs who otherwise do not show a strong interest in public activity may be incentivised to do so under economic pressures. This reflects the ability of the workforce to respond to financial pressures from patients when economic shocks occur, however it may also indicate that some providers may be incentivised to take up contracts if an increasing proportion of the population they serve become eligible for free care (and thus the private population and pool of resources contracts).

GPs who otherwise do not show a strong interest in public activity may be incentivised to do so under economic pressures.

3.1.13 Commentary on market response to economic conditions under private demand-led pricing and public capitation-based pricing. It cannot be assumed that fully private providers would take up public contracts under an eligibility-expansion scenario given current market structures and depending on the cooperation across providers. Consider the following example: person J pays for care out-of-pocket on a (consumer) demand-led model with Dr A (this is the standard model of demand and payment in the private market). Person J becomes eligible for publicly-subsidised care. However, Dr A decides to remain in the private market. Thus, J selects or is assigned to Dr B who is contracted to provide public services. Dr B is paid by the state on a capitation basis receiving payments regardless of the level of care provided to J. If the pool of private providers remains largely private, a scenario will develop where there is a surge of newly public-eligible patients registering with the pool of public or mixed provision providers such as Dr B. As a result, demand on the public market (B) increases while demand for the private market (A) decreases or remains stable. It could force B to ration care – either on the basis of need, first-come-first-served or – in theory – a mixed provision provider could prioritise private patients (although this is not allowed under the contract, there would be financial incentives to act in poor faith). As such if J has an ability to pay and a low preference for waiting, they can return to Dr A and pay out of pocket for care that the state has already paid Dr B for. In this way, without careful monitoring and adjustment to the market from its current state significant changes to public provision eligibility aimed at reducing financial burden could see ability-to-pay return as a determining factor in accessing general practice services – with a price increase as both public and private payers pay for the same good. Interventions to combat this risk could include strict enforcement and monitoring of contract terms on prioritisation of patient waiting lists, a move from capitation to demand-led payments for the public payer, and a restriction to public-only contracts. In the interim, the market should be monitored for signs that these perverse incentives are taking hold.

Without careful monitoring and adjustment to the market from its current state, significant changes to public provision eligibility aimed at reducing financial burden could see ability-to-pay persist or return as a determining factor in access to general practice services – with a price increase unlinked to productivity or efficiency as both public and private payers pay for the same good.

3.1.14 Continuity of supply of GPs for public services. PCRS allows us to examine panel lists where a locum GP is marked as holding the list. Where a GP name is listed as locum and the person does not recur in the data they are recorded as a standard GP in the count. However, in some cases locum GPs hold two panels – one under their name and another under their name with a (locum) addendum and a different GMS number. The locum GP holds panels across two practices in the same county, town or practice. For the purposes of the GP headcount carried out here, a GP is counted only once under their non-locum identification. Across 37 locums (affecting

Uptake of targeted schemes that affect a large proportion of the population such as the childhood immunisation, maternity & infant and national cancer screening scheme are particularly low [in areas reliant on locum supply of GPs].

17.7k GMS patients) who are excluded from the count of standard GPs, 54% are found in community health organisations one and two – the areas covering the west and northwest between Galway, Donegal and Monaghan. The rurality of the practice does not appear to overly drive the discontinuity in supply – 11% of the locums are matched with the rural practice support allowance. In these areas patients may be more likely to experience relative disruption to the continuity of their care as locum GPs hold lists temporarily or over the longer-term. It could also indicate high levels of burden of the GP if they are providing cover for an absent role in addition to their permanent list. The average panel size is 480 with only rare incidents of combined panels exceeding 2,000 suggesting that demand constraints are likely well managed by both the GPs and the HSE in terms of redistributing lists. In terms of impact on patients, uptake of some of the main contracts is particularly high in these areas (95% - 97% for the under 6, CDM and GP modernisation contracts). However, uptake of targeted schemes that affect a large proportion of the population such as the childhood immunisation and maternity & infant schemes are particularly low (41% to 43%), with the national cancer screening strategy contract held by only 3% of the cohort.

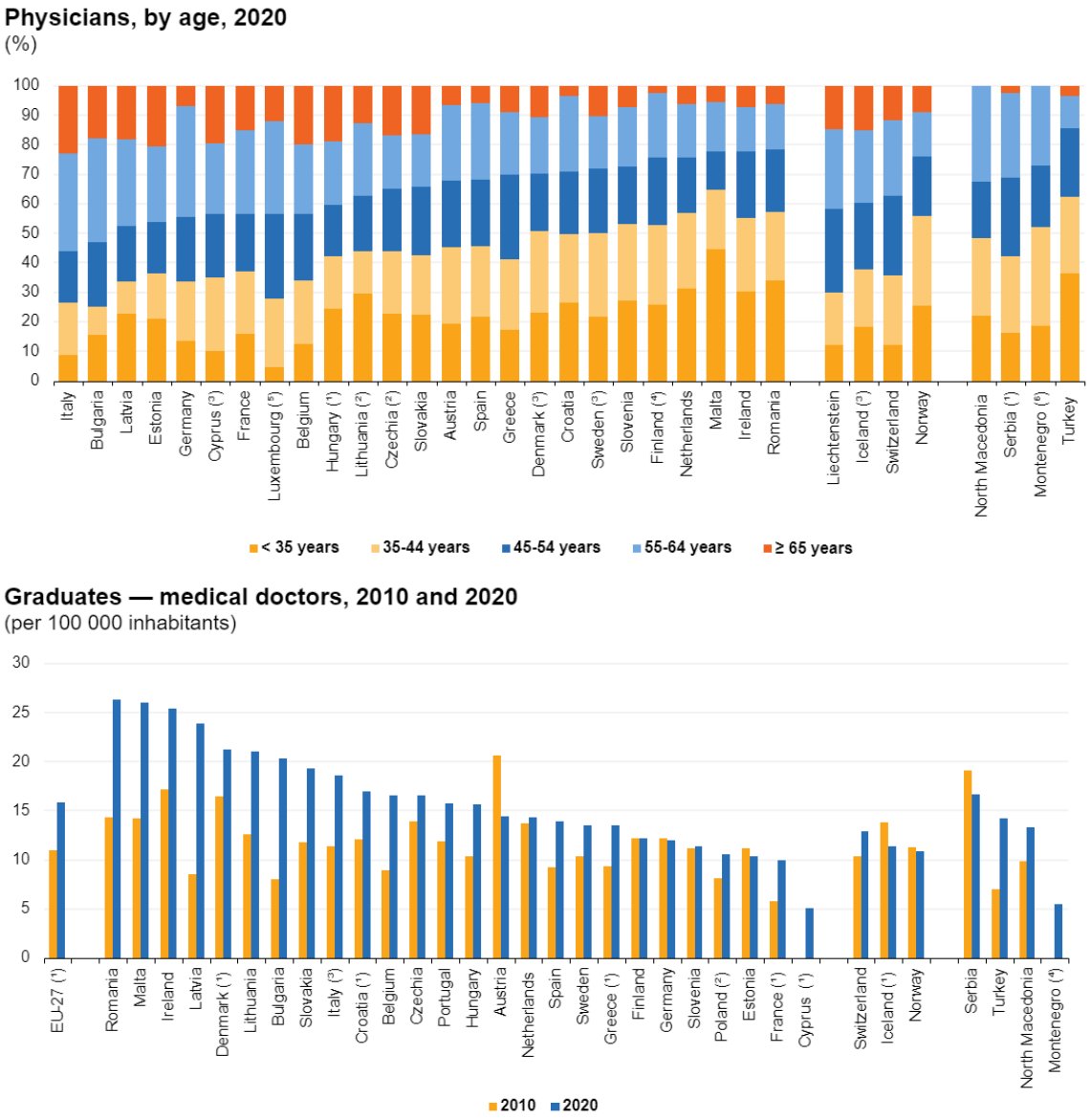
3.2 CHARACTERISTICS OF GPS

In this section

The age profile of GPs, the approach used for estimating this, the number of GPs approaching retirement, current vacancies arising from retirements, evidence on shifting working patterns in younger GPs, and the number of graduates entering and being retained in the market.

3.2.1 Commentary on the age profile of medical workforce. The age profile of GPs has been cited as a concern for future supply of GPs by Teljeur et al. (2010). The age profile of the workforce will affect supply if the age distribution of GPs is skewed towards older ages. Thus, we consider the distribution of the age profile of GPs and the supply of graduates to meet the decline. First, the international context is considered using Eurostat data, as shown in Figure 3.3. Internationally, Ireland has a relatively young physician workforce, with amongst the lowest proportion of physicians over 65. Further, the number of medicine graduates has increased over time, with Ireland ranking the third highest in the EU by 2020. However, international statistics are available only for the overall physician workforce and not for general practitioners specifically. Also, graduate numbers do not show the retention of that workforce in Ireland or the rate of GP training within that cohort.

Figure 3.3 Eurostat EU comparison of physician age profile and graduates



Source: Eurostat Health Resources Statistics Database for 2022

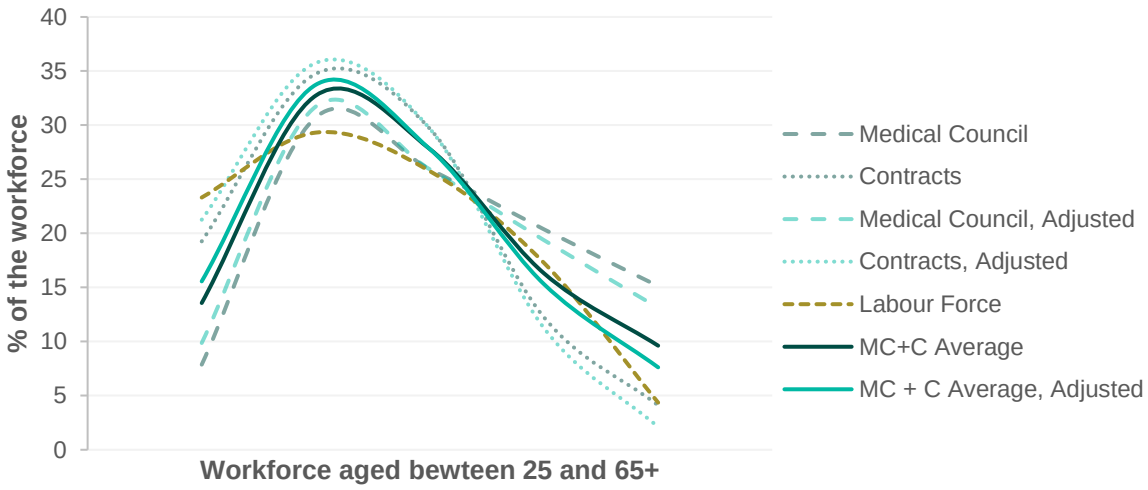
3.2.3 The age distribution of GPs. The age profile of GPs is considered using two data sources. First, the age of GPs who renew their registration with the Irish Medical Council is recorded. This provides rich insight on the age profile of GPs with two caveats that (1) it will likely be biased upwards as first-time registrants, who are not included in the data, are likely to be younger and (2) it includes all GPs who retain some level of clinical activity. As we saw with the very low working hours of some reporting GPs, this likely includes GPs who are not providing standard GP services by the definition used here. As a second approach to considering the age of GPs, we consider the year in which a GP first took up a HSE contract. Assuming a base age of 30 as the year in which a GP takes up a HSE contract for the first time, GP ages are extrapolated based on contractual status. Here, the data is likely biased towards a younger cohort of GPs. While contracts from 40 years ago likely allow reasonably accurate assumptions around GP age, the certainty of the extrapolation becomes weaker as the contracts become newer. A GP can decide to take up a contract at any age and, as evidenced in the 2008 peak in contract uptake, it is inaccurate to assume that initial GP registration is well correlated with contract uptake. As such, we consider the average of raw medical council and PCRS age figures with an adjustment to the data where the tails are re-weighted to reflect likely errors. Figure 3.4 shows the age profile of GPs alongside the Irish national labour force distribution for contextualisation from age 25 onwards (Source: CSO ILO workforce population for Q4 2022). Here, we see that the age distribution in the GP workforce is normal relative to the national workforce. Given the later-age of entry into the workforce[4], it is unsurprising that a higher proportion of the national labour force is in younger age groups than in the GP workforce. In the middle of working life, the distribution of the GP workforce is in line with the national workforce. By age 65, as the national workforce declines to 4% of the workforce, in GPs it remains higher – at 7% to 9%. This likely reflects the higher retirement age for GPs and the preference to complete a 40 year career span from entry into the workforce. However, HSE reports on GP replacement indicate that a few GPs defer retirement pending their replacement. As such, the age distribution of the GP workforce alone is currently not a cause of concern for workforce supply. However, it should be continuously monitored to ensure graduation and retention rates are adequate to meet substitution needs. Further, GP preferences in terms of location may mean that substitution issues will still arise

The age distribution in the GP workforce is normal relative to the national workforce and the age at which GPs enter the workforce. As such, the age distribution of the GP workforce alone is currently not a cause of concern in terms of workforce supply. However, it should be continuously monitored - substitution issues will still arise in some areas arising from GP preference.

[4] This refers to entry into the workforce as a general practitioner which is delayed relative to the larger population as post-secondary education takes 9 years.

in some areas – this is discussed more in the section on reginal supply and demand. In terms of the number of GPs approaching retirement, we do not have good sight on the average age at which a GP chooses to retire. Based on the approach above, we estimate that there are between 308 and 344 GPs aged 65 or above, and 588 to 624 aged 60 or above.

Figure 3.4 Age distribution of GPs compared to the National Labour Force



Data sources: Irish Medical Council database of re-registrations, PCRS data on year of first contract uptake, and CSO ILO data on the Irish labour force population by age band in Q4 2022. MC indicates data from the Medical Council and C indicates information from PCRS contract data.

3.2.4 Method for identifying GP capacity risks related to retirement. From our considerations of the age profile of the market, we need a better understanding of how GP preferences interact with respect to retirement. That is, whether there is evidence of insufficient or potentially unstable supply of GP services in areas where some GPs are due to retire and others are not filling the upcoming or existing gap – that is, succession planning. Here we consider PCRS contract age as we can examine this on an individual GP level. We assess the risk of instability in supply arising from retirement as a function of three factors:

$$Risk = f(Nearing\ Retirement, Full\ Workload, Viable\ Replacement)$$

1. *Identify GPs nearing retirement* – here we consider GPs whose first contract with the HSE was in or before 1992. For a GP entering the workforce at 34, this means they are now 65. For a GP entering the workforce at 30, this means that they are now 61.

2. *Identify GPs working to capacity* – GPs may gradually reduce their workload as they approach retirement, ensuring a smooth transition for their patients. Thus, we consider GPs

who retain a panel of 500 or more patients, showing no evident tapering of workload.

3. *Identify if a viable replacement exists* – Here a viable replacement is indicated if there is another GP in the same practice who has no public panel or a panel sufficiently small that the combination of their existing panel and the retiring GP's panel will not exceed 1,300. This is used as a national indicator for a stressed list, assuming that a GP working in a public-private mix would retain at least 35% of a 2,000 patient list as private patients under the current ratio of public to private patients.

3.2.5 GP capacity risks related to retirement. Across the country, 132 panels have been identified where the GP is due to retire in the next 10 to 15 years with no obvious replacement to take over their panel – almost 5% of the GPs retained in the cleaned PCRS dataset. The panels at risk of insufficient replacement have three types of profile:

1) Single GPs nearing retirement with no viable scope to transfer panels,
2) GP practices with two GPs where both the GPs are nearing retirement, and
3) GP practices with two GPs where one GP is nearing retirement but the other GP has limited scope to take on more patients.

Upcoming retirements in single GP practices make up 55% of the panels at-risk. Thus, these panels are an obvious target for facilitating and incentivising succession planning. However, to avoid periods of unstable supply and ensure support for GPs in situ while avoiding strain on their capacity, multi-GP practices also require attention.

3.2.6 Current vacancies arising from retirements. HSE reports on vacant GP panels indicate that the HSE has a high level of engagement with GPs on the potential instability of supply and is effective in mitigating this risk. In August 2022, there were 25 vacant panels across Ireland - 13 of which had been vacant for less than a year. Of the 25 vacancies, 8 were likely temporary (indicated through an ongoing liaison with successful candidates or through confidence in filling positions with a very short vacancy on interview in large urban areas) and 10 vacancies were likely proving difficult to fill (indicated through statements on re-advertising vacancies, those with a lack of applications, and developing alternative approaches to securing vacant panels). Where vacancies are persistent, there is no consistent theme – they divide evenly between rural and urban areas, although large urban areas appear to be easier to maintain supply. For six panels, the certainty of their future was unsure (e.g. in the process of advertising) and one vacant panel was unrelated to retirement. The relatively low number of vacant panels compared to those at risk indicates that the

There is some evidence that inadequate succession planning for retirement may be a risk to the stable supply of GP services in some areas, with single GP practices making up half of the risk group. The HSE appears to be effective in identifying and supporting these panels at risk. However, in limited cases there is evidence of long-term locums in roles – effectively de facto salaried GPs.

HSE is successful in supporting GPs and local populations to ensure relatively smooth transitions, despite apparent difficulty in drawing GPs to a limited number of locations. This analysis did highlight a few (under 5) long-term locum-filled panels. In these cases, it may be useful to consider whether these roles are de facto salaried GP positions that are currently filled in an ad hoc way (which could have continuity and value for money implications). Further engagement with GPs may allow the transition period to be even smoother for patients and ensure better continuity of care if short periods of panel vacancy could be avoided through facilitating onboarding of replacement GPs before the current GP's exit from a panel – though, it is acknowledged that market exit cannot always be signalled in advance.

3.2.7 Shifting working patterns in general practice - literature. There is some evidence in the literature on shifting patterns of general practice, indicating that younger GPs have different working preferences than older GPs (Crosbie et al., 2020). Younger GPs, generally, value work-life balance where a reduced, more manageable clinical and non-clinical workload is desirable (Collins et al., 2019; Teljeur et al., 2010). There appears to be a difference in what constitutes appropriate personal time between younger and older GPs with the former more likely to experience burnout and low morale (Hayes et al., 2020; Humphries et al., 2019). An ICGP survey finds that two-thirds of recent GP graduates see themselves working less than eight sessions, effectively four days, a week (Collins et al., 2019). There is an opportunity in reduced active practice hours to incentivise and support complementary work in non-practice hours, such as research, mentoring and supervision, and upskilling/specialisation.

Younger GPs indicate that we want to work fewer clinical hours, often so as to carry out valuable complementary work such as research. This needs to be factored into future service planning. For GPs with public contracts, however, there is no indication that panel size is being affected by reduced working hours.

3.2.8 Shifting working patterns in general practice – evidence from PCRS. We aim to examine this theory using the subset of GPs with public panels. We assume that small panels relative to the local eligible population reflects lower working hours for the GP. Thus, if younger GPs prefer lower working hours, panel size should be positively correlated with contract age. We restrict the sample to GPs whose contracts started between 1998 and 2018 – this restriction of the tails of the distribution aims to exclude GPs with older contracts who may be transitioning to retirement and GPs with new contracts who may be in the process of building their panels. While GPs can opt in for HSE contracts at any point in their careers, contract start dates are the strongest proxy available for individual GP ages. GP contract start dates and panel sizes have a small, negative correlation, indicating that GPs who start their panels later are not likely to have smaller panels than those who start earlier. Given contractual terms around availability for work during the standard working week, this implies that a significant cohort of younger GPs are engaged in the same level of working hours as older GPs. However, we cannot state anything about their co-workers' working hours.

3.2.9 Graduates and the replacement rate for GPs. The number of GP graduates is a vital consideration in the supply of general practice services, both in terms of replacement for attrition from the workforce and in meeting the needs of a growing and ageing population with shifting care preferences. The Irish College of General Practitioners (ICGP) which manages the specialist training programme for GPs in Ireland indicates that there has been an 86% increase in the intake to the programme between 2015 and 2023 – from 153 to 285 with 932 trainees enrolled in the typically four-year programme in November 2022 (ICGP 2022). Figure 3.5 shows the replacement rate of graduates relative to retirements by 2030. The HSE reports that incoming GP graduates are expected to total 1,998 through to 2030. From CSO figures, we assume an attrition rate of 1.5% for Irish graduates and uprate it to 4%, using ICGP survey numbers, to account for all graduates, Irish or international (CSO, 2023; ICGP, 2024). Using information on contract age we estimate that 536 GPs will reach retirement age over 2023 to 2030. Further, we assume that retiring GPs have longer working hours than recent graduates – it is reported that GPs under 45 working 47.7 hours per week and GPs aged 55+ working 50.8, a ratio of 1.06 to 1 (Crosbie et al., 2020). Here, we assume 1.1 recent graduates are needed to replace the working time of a retired GP – increasing to acknowledge that both groups are in the tails of the distributions presented by the referenced study. Similar levels of activity reductions have been applied in Belgium to account for slightly higher productivity of older GPs (BE HSPA, 2024). Thus, we build in a loss of 54 additional GPs that graduates would not be expected to replace. The HSE indicates that 508 resignations could take place over this time period. Again, using the CSO's work on graduate outcomes, we anticipate that for 220 persons, this departure would be temporary – 43% of Irish medicine graduates who are inactive for at least one year in ten after graduating later return (CSO, 2023). Combined, this series of inflows and outflows would result in an additional 1,090 GPs being in the workforce by 2030. Furthermore, the HSE estimates that a further 1,871 international GPs could enter the workforce over this period.

Intake to the GP training scheme has increased by 86% since 2015. Accounting for attrition of graduates and possibly higher productivity of older GPs, the replacement rate of graduates to retiring GPs between 2023 and 2027 is between 1.5 and 3.1.

3.3 CHARACTERISTICS OF GENERAL PRACTICE NURSES AND MIDWIVES

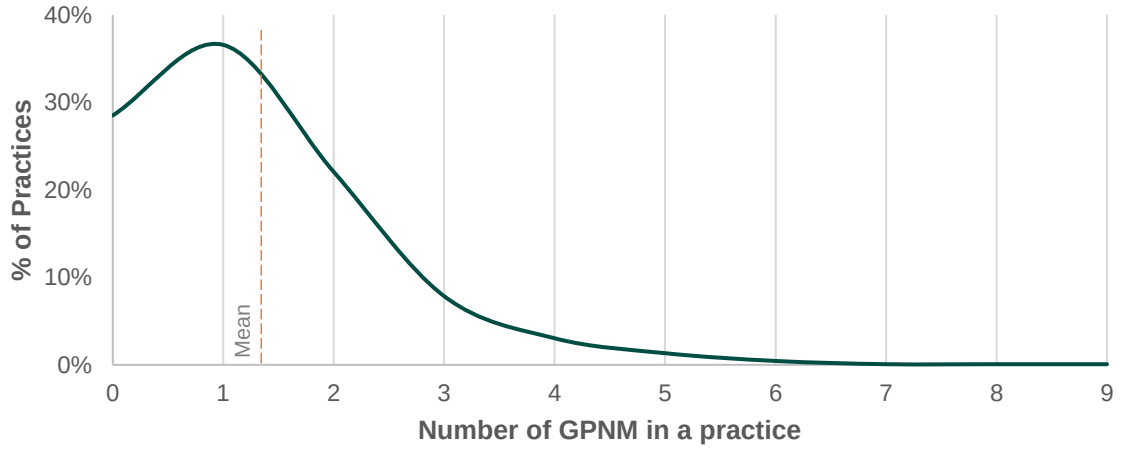
In this section

The number of general practice nurses and midwives (GPNM), detailing of a large subset of practice nurses on a practice level, the scope of the GPNM role, commentary on the supply of GPNM consultations within general practices, drivers of GPNM location, and the population of GPNM relative to GPs and local population demands.

3.3.1 GPNM per practice. Figure 3.6 shows that across the practices where we observe general practice nurses and midwives (GPNM), the average number of GPNM in a given practice is 1.79, the minimum is zero and the maximum is 9.5. This average reflects a skewed distribution as 28% of practices have fewer than one GPNM while two-thirds of practices have between 1 and 3 GPNM.[5]

[5] The Cervical Check registry likely has some GPNM who are double-counted as they move place of employment. Where a GPNM name is listed twice within the same or neighbouring counties, we assign half that GPNM's working time to the two practices with which their name is associated. As such while the estimation is carried out on the assumed population of persons working as GPNMs rather than WTE, practices can have a fractional number of GPNMs associated with them.

Figure 3.5 Distribution of the number of GPNM in practices



Distribution is binned under each whole number – thus here 0 represents fewer than one GPNM is a given practice and the 28% used in the distribution is made up of 21% of practices that have no GPNM and 7% that have more than one and fewer than zero GPNM.

Table 3 Estimation of WTE GPNM and GPNM consultations over time

	2016	2020	2022	% Change 2016 - 2022
Population [1]	**4.8m** [1]	**5m** [1]	**5.1m** [1]	**8%**
Nurse Visits Estimate	**6.7m** [2]	**7.7m** [3]	**8.4m** [4]	**27%**
Nurse Visits / Person	**1.40** [4]	**1.56** [4]	**1.63** [5]	**18%**
WTE Nurses	**1,400** [6]	**1,576** [7]	**1,664** [8]	**19%**
Visits / WTE Nurse	**4,758** [4]	**4,917** [4]	**5,065** [4]	**6%**
Consultations per day (225 day year)	**21.2** [4]	**21.9** [4]	**22.5** [4]	**6%**

[1] Population figures from Census 2016, 2022 and 2020 CSO population and migration estimates. [2] 2016 estimation based on average of Capacity Review 2016 estimate of "just under" 7 million (set at 7 million) and authors' estimation based on Healthy Ireland 2016 and extrapolating using GPNM consultation numbers in Healthy Ireland 2019 to set a lower bound of consultations at 6.3 million. [3] Based on data from February 2020, Collins & Homeniuk (2022) report an estimated 7.75 million nurse consultations. [4] Simple calculations derived from surrounding information. [5] Assumes a constant rate of increase matching that seen between 2016 and 2022 (annually assumed to increase at a stable rate). [6] From 2018 Capacity Review. [7] Weighted average of 2016 and 2022. [8] Based on authors' calculations (see write-up above).

2.1.4.3 Supply of GPNM services. We take two approaches to estimate nurse visits which allows us to validate the estimates. In one approach, we take information from a range of sources based on administration, registry, and survey data over time to extrapolate an average daily consultation rate of 22 visits per WTE GPNM in 2022. We estimate that 9 million GPNM consultations were carried out in 2022 – 22 per day on average per WTE GPNM and a rate of 1.8 consultations per person over the total population. We validate this using self-reported GPNM consultation use in Healthy Ireland 2023, where the average consultation rate is 22. The number of consultations per person and per nurse is likely increasing over time, independent of shifts in the patient and workforce populations. While the workload of GPs and GPNMs differs significantly, in pure consultation terms the GPNM workforce augments the consultation output of general practices by 33%. As such, GPNM are a significant factor in the general practice market and workforce. Current public provision contracts are tied to GPs rather than general practices or the range of staff within the service. Therefore, we have relatively poor visibility over this important factor. Visibility is nil for other central parts of the general practice workforce, even where there are payment lines tied to role, such as practice administrators.

In pure consultation terms the GPNM workforce augments the consultation output of general practices by 33%.

2.1.4.4 Scope of GPNM services. GPNMs are privately employed by a GP to provide a holistic nursing model of care to the population of a general practice. They report clinically to the GP and are responsible for their individual scope of practice (Capacity Review, 2018). Many GPNM hold dual-registration and the breadth of these registrations is an indication of the broad skill-set available in general nursing, midwifery, child, prescribing, intellectual disability, psychiatric, public health and clinical teaching of nursing and midwifery. Advanced nurse practitioners are not commonplace in general practice, with just 0.1% of GPNM holding this registration with the NMBI. In a small sample study of practices and practice nurses, Bury, Twomey & Egan (2020) report 40 areas of scope for GPNMs. Across 12 areas, at least 90% of GPs and GPNMs concur that the role includes ABPM fitting, phlebotomy, dressing/wound care, immunisations, ECG recording, nebulisation, providing patient information leaflets, liaising with public health nurses, management of AED/emergency bags, providing telephone advice, cervical smear, and diabetes review. The remaining 28 areas are less frequently cited by GPNM as within their role and/or there are conflicting reports on scope between GPNMs and GPs – the largest disparities arise with respect to liaising and networking work. As GPNM and their employers are the sole determiners of a given GPNM's role scope, it is reasonable that so much variance arises. From a labour force perspective, this variance could potentially inhibit workforce development – as individual skill sets garnered in one practice may

From a labour force perspective, the variance in the scope of the GPNM role could potentially inhibit workforce development – as individual skill sets garnered in one practice may not be substitutable with the skillset assigned to a GPNM in another practice. As such, workforce mobility and progression could be hindered. There is significant potential for the state to consider policy in this area given GPNM subsidies already exist in many contracts and there is a high correlation between "fee per item" treatments and GPNM role scope. Effectively, there are direct and indirect subsidies to GPNM currently.

not be substitutable with the skillset assigned to a GPNM in another practice. As such, workforce mobility and progression could be hindered. Given the role of the state in directly financing GPNM services through the practice support allowance in GMS and indirectly through the wide range of fees that are highly correlated with the GPNM role, there may be scope for the state to tie funding lines with policy objectives around the formalisation of the GPNM's role in general practice. Any review of the GMS contract could consider the full scope of direct and indirect subsidies to GPNM services.

2.1.4.5 The supply of GPNM relative to GPs. In whole figures, we consider that there are 2,200 GPNMs to 3,262 GPs: a ratio of 0.67 GPNMs to each GP nationally. Generally, the rate of GPNM availability in the population is not well correlated with GP supply.

We examine likely drivers of the workforce supply –

1) *Prevalence of single GP practices* – We hypothesise that single GP practices may be more likely to employ a GPNM to insure against demand spikes. Further, multi-GP practices may not employ GPNM at a 1:1 ratio with GPs and thus, the relative supply of the total workforce may be higher in areas with large single GP practice prevalence.

2) *Age of local HSE contracts* – This may reflect the age of the local GP population and serve as a proxy for the modernity of the practice. Uptake of contracts could also reflect a responsiveness to the needs of the market.

3) *Pace of population growth* – Here we anticipate that, as with contract uptake, workforce supply may take time to respond to large increases in population size.

4) *Size of the older population* – Older people use GP services more and have more complex needs on average. Thus, the workforce supply per person may increase in areas with older populations in response to demand.

Modelled, these factors explain 60% of the variance in the relative workforce supply. There is a strong positive correlation between older populations and workforce supply and a strong negative correlation between population growth and supply. For areas where population growth is strong but the population is relatively young, GPNM supply is relatively low. Here, the available workforce may be faced with lower demand for care relative to areas with older populations. Where population growth is generally low but the proportion of the population aged 65+ is somewhat to very high, the presence of a high number of GPNMs relative to GPs may also be an indication of industrial re-structuring in response to an increasingly ageing population, also indicated by the relatively young age of HSE contracts in these areas. For context, the areas with the lowest population growth and highest older populations are also the areas where workforce supply is highest and the contract age is relatively young.

There is evidence of industrial restructuring in response to population ageing, but less so for population growth driven by younger cohorts.

3.4 CHARACTERISTICS OF GENERAL PRACTICES

In this section

The composition of general practices is considered. The standard public-facing opening hours of the practices is analysed before the workforce provisions for the cover of GP leave and out-of-hours services is considered. Finally we comment on the role of primary care centres in shaping the local provision of care.

3.4.1 The composition of modern general practices. General practices can be grouped into either single GP practices, practices with two GPs, or multi-GP practices with more than two GPs. Internationally, there is a shift away from single-GP practices towards multi-GP practices (Kelly and Stoye, 2014; Public Health Scotland, 2021). The structure of general practices is of interest in terms of ensuring continuity of care, sustainable working, and reduced average costs for GPs (Rosen et al., 2016). Multi-GP practices may contribute to greater continuity of care for individuals, as the practice could respond more quickly to supply or demand shocks, by distributing work over the available workforce. In contrast, continuity of care may be more at risk in in single GP practices should the GP exit the market. Another reason cited for the shift to multi-GP practices is the higher incidence of referral rates to emergency care in single-GP practices, a marker for time constraints in the market (Coyle et al., 2011). There is also evidence that multi-GP practices can lead to moderate improvements in performance and outcomes in the medium term while also being able to support larger list sizes (Blanden and Chatzistamoulou, 2018). There are mediating factors affecting both clinical, economic, and productivity outcomes and restructuring practice composition is just one component of it. However, it can foster benefits both for the GPs themselves and the population they serve.

Table 4 Single-GP, dual-GP and multi-GP practices

Number of GPs	Practices	% Practices	GPs	% GPs
Up to 1	678	47%	655.5	20%
1 to 2	324	22%	642.5	20%
More than 2	449	31%	1964	60%

Note that a GP is included in the headcount as 0.5 if they are listed as working in two practice locations. Thus the headcount GP figures are within a range up to and including each whole number.

3.4.2 Number of general practices. Of the 1,451 standard general practices in Ireland identified earlier, on average, there are 2.25 GPs per practice. Table 5 illustrates the distribution of GPs across different composition of practices. 60% of the GPs in Ireland are organised in multi-GP practices with more than two GPs. 20% of GPs operate in practices with one other GP. The remaining 20% of GPs still operate as single practices. As we saw in the previous section, single GP practices are correlated with GPNM supply. Thus, in these areas the market may be relatively well prepared to respond to short-term demand shocks. However, longer term continuity of supply may be at risk if a GP suddenly leaves the market. There are also economic, health and health service management rationales for supporting the restructuring of general practice services in areas with high levels of single GP practices.

20% of GPs operate in single GP practices, with a further 20% of GPs operating in dual-GP practices. Longer term continuity of supply may be at risk if a (single practice) GP suddenly leaves the market, and there are economic, health and health service management rationales for supporting the restructuring of general practice services in areas with high levels of single GP practices.

3.4.3 Availability of general practices – public opening hours. The public opening hours for general practice services are useful to consider in terms of continuity of care – a patient seeking care outside their registered practice's opening hours will likely receive discontinuous care from another practice, out-of-hours service, or other health services such as an emergency department. Public opening hours were collected from a sample of 356 GP practices, with information scraped from practice websites. Public opening hours likely do not reflect the actual working hours of practice staff – non-contact work such as administration is a major component of general practice productivity that can happen outside patient-facing time. 53% of the surveyed practices have standard working hours, defined as opening from 9:00am to 5:30pm with a typical one-hour lunch break, usually from 1pm to 2pm – this standard day consists of two sessions. 14% of these practices operate on a half day within the week, typically on Wednesdays, where a single public session is held. 47% of general practices deviate from the standard opening times by half an hour to one hour either in the morning or evening,

47% of surveyed general practices provide public-facing access for 30 to 60 minutes outside the hours of 9am to 5.30pm Monday to Friday, with a further 3% of practices offering weekend access.

with some practices opening at 8:00am or closing by 6:30pm. 3% of practices open on Saturdays for half a day. These extended timings could help improve the accessibility of these services for individuals and families who are unavailable during standard working hours and it is promising that a significant proportion of practices are engaging in these expanded opening hours. Regionally, GP practices in Carlow are more likely to have extended opening hours to accommodate care outside of standard times, relative to the county's population, whereas in Clare, standard public opening hours are most common. The probability of GPs having expanded opening hours appears to be related to the composition of GP practices. Multi-GP practices are more likely to operate outside standard opening hours, likely because increased public opening hours can be distributed across staff members, ensuring improved access for patients without excessive individual working hours. With evidence that many general practices, especially multi-GP ones, are willing to expand working hours in response to market conditions, incentives for expanded general practice opening hours could be considered in a bid to improve continuity of care and reduce the burden on spillover services.

3.4.4 The standard GP public-facing working year. This paper predominantly focuses on the supply of "Standard" GPs. However, the continuity of supply of general practice is a vital element of these services. This includes the provision of general practice outside typical working hours (5.30/6pm to 8/9am on weekdays and 24 hours a day at weekends and on bank holidays). Furthermore, cover is required for the various leave requirements of Standard GPs, including annual leave, sick leave, maternity leave, parental leave, and study leave. From consideration of the public facing hours of general practice services we consider the requirements for adequate cover for out-of-hours services and substitution for GP leave. We assume that a given WTE GP provides services over an 8.5-hour period in a standard working week (e.g. between 9am and 5.30pm Monday to Friday). For 2022, we reduce working hours from the 365 day calendar year for the average GP through:

- 105 weekend days,
- 10 public holidays and 25 annual leave days (35 days is the annual leave entitlement for a GP with a maximised panel of 1,500 public patients),
- 10 days of study leave (again based on entitlements under the GMS contract – actual uptake is lower),
- 5.8 sick days (based on the average of 1.4% and 4.2% of rostered days for doctors and nurses in the NHS – BMJ), and
- 4.6 days of maternity, paternity and adoptive leave (based on paid and unpaid leave entitlements in the GMS contract, a birth rate of 2% in the population aged 25 to 74 derived from CSO Vital Statistics and Census 2022, and an assumption that full benefits are drawn down).

For the 204.6 working days, we also factor in out-of-hours cover for 15.5 hours. Thus, a standard WTE GP has 1,739 hours of publicly accessible working time.

Table 5 Cover requirements for non standard general practice hours

		Locum substitution rate				
	Hours	**1 to 1**	**2 to 1**	**3 to 1**	**4 to 1**	**5 to 1**
Worked hours	**1,739**					
Leave - standard hours	**386**	**0.22**				
Leave - out of hours	**703**	**0.40**	**0.20**	**0.13**	**0.10**	**0.08**
Evenings, weekends & public holidays	**5,932**	**3.41**	**1.71**	**1.14**	**0.85**	**0.68**
	8,760	**4.04**	**2.13**	**1.49**	**1.18**	**0.98**

3.4.5 Workforce requirements to cover leave and out-of-hours. From the work described at the start of this paper, we have some visibility on 3,262 GPs in Ireland. The Medical Council reports 4,257 GPs – we theorise that the gap is likely made up largely of GPs working outside standard general practice. Many of these are likely locum GPs who provide important cover for short and long term periods for standard GP vacancies (note that many GPs registered with PCRS have a second registration as a locum creating a population of standard-locum mix GPs also – here we consider only GPs who work solely as locums in Ireland). The working hours and patterns of these GPs are not known – some locums are thought to be clinically active for only a few weeks in a given year (for example, providing cover at the end of December) and otherwise clinically inactive especially if they live in another country for most of the year. As an alternative approach to considering locum requirements in this opaque area, we examine the hours for which a standard GP does not operate. Table 6 shows calculations on the locum requirements for a standard GP. We assume that leave requires a one-to-one replacement of workforce supply for the maintenance of regular, standard opening hours within the practice. For 2,740 WTE standard GPs, this implies a workforce of 678 WTE locums just to provide cover during standard opening hours. This estimate does not account for periods of high levels of leave-taking such as at the end of December. Furthermore, assuming that a single locum can provide cover for five WTE standard GPs simultaneously, sufficient out-of-hours locum cover would require a doubling of the GP population. In reality, many GPs work in cooperatives to provide out-of-hours and leave cover. However, for a sustainable approach to providing continuous general practice coverage the workforce supply for out-of-hours care is crucial. Here, the question of incentivising longer standard opening hours in multi-GP settings could be considered as a means of

For the 2,743 WTE standard GPs, a workforce of 679 WTE locums would be required to ensure continuous standard practice opening hours.

concentrating more GP access in a broader standard timeframe, thus reducing the uptake of and staffing requirements for out-of-hours services.

3.4.6 Primary care centres. Primary care centres are an opportunity to encourage multi-disciplinary teams to work together, increase collaboration among different primary care providers, and improve coordination with secondary care (Bonciani et al., 2018). It has been hypothesised that younger GPs are likely to gravitate towards co-location in primary care centres as it shifts the burden of capital investment from individual GPs to the state and provides for multi-disciplinary practice. Regression analysis of primary care centres and GP age shows a very small, statistically significant, positive association between the two. This means that while younger GPs are somewhat more likely to practice within primary care centres, they are not a crucial incentive for the location of new GPs. In fact, what we generally see in primary care centres are a mix of experienced and inexperienced GPs working in large practices. Importantly, primary care centres are highly correlated with contract uptake – with practice location within a primary care centre as the strongest correlate for the presence of an under 6 contract. Thus, primary care centres are likely an important tool for ensuring the stable of supply of GP services related to public schemes and facilitating the development of early career GPs in practices with more experienced GPs.

Primary care centres attract a mix of experienced and less experienced GPs working together, often with high contract uptake. Both factors are important considerations for the stable supply of quality general practice services.

4. Regional supply and demand

4.1 REGIONAL GENERAL PRACTICE SUPPLY AND PUBLIC CONTRACT UPTAKE

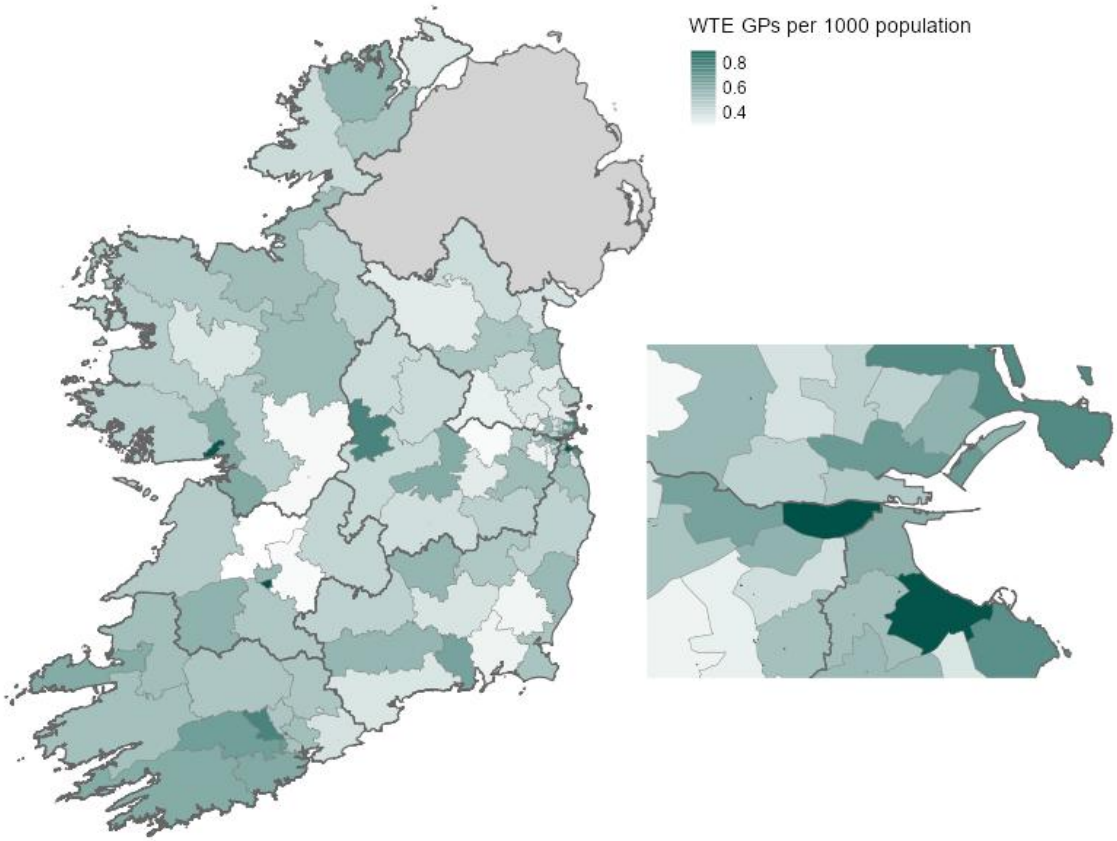
In this section

The supply of WTE GPs and GPNMs relative to the population on a CHN level. Contract uptake, public patient panels, GP age, and capacity risks are discussed.

4.1.1 Important caveat on the interpretation of regional data. There is a margin of error of just under 1% in the total estimates of demand when we consider GP supply and demand on a regional basis. This arises because administrative data and census data are consolidated to generate demand estimates. This process is described in detail in chapter 2. In general, a CHN or county should be considered relative to its neighbours: where there are apparent supply constraints in one area, it is likely that people close to the borders may travel for care. This mobility for care is likely even higher in high-density populations like Dublin and Cork. For example, in one Dublin postcode the total number of patients on public panels exceeds the entire population of the area. In surrounding areas, the supply of GPs is relatively low. Given these areas are within a few kilometres of one another, people may routinely travel for care. Thus, while South Dublin appears to have a high number of GPs relative to its population and Dublin West appears to have low numbers, there could be significant movement of persons between areas to attend general practice services. Furthermore, WTE adjustments are made at a national level, and thus working practices may vary across smaller areas in a way that cannot be observed here. Caution should be exercised when interpreting this and other CHN maps with granularity for the same reason that people may live and see their GP in different areas.

Capacity should be considered relative to neighbouring areas, as the reality of access is that patients likely move between small geographic areas for care.

Figure 4.1 Map of WTE GPs per 1000 people, at a CHN level



4.1.2 Regional supply of WTE GPs per person. So far, only national trends have been considered in GP supply and demand. However, these figures mask significant regional variation. The figure shows standard WTE GPs per 1000 people in each Community Health Network (CHN)[6]. The map is darker where the number of WTE GPs per 1000 people is higher – this indicates better supply on a per capita basis. East Clare[7] has the lowest number of GPs on a regional population basis – 0.35 GPs per 1000 people – which is 44% lower than the national estimate of 0.63. East Limerick and Ballina,

[6] There are 96 CHNs across Ireland. Each CHN delivers primary healthcare services across a population of 50,000.

[7] Note that many community health networks do not align with county boundaries – for example parts of county Clare are in the neighbouring CHNs of East Limerick and Ballina.

Northwest Kildare, and Citywest and Blanchardstown in Dublin also have low WTE GPs per 1000 people relative to other areas. WTE GP numbers are low and likely to be exacerbated by demographic pressures in Meath, Leitrim, Kildare, and Wexford – areas that fell in the highest quartile of population growth between 2016 and 2022 (CSO, 2022). On the other side of the scale, South Dublin Inner City, South Limerick City, Blarney and North Cork City, and Westmeath and Offaly have a high number of GPs for their populations with estimates ranging from 0.91 to 1.2 WTE GPs per 1,000 people.

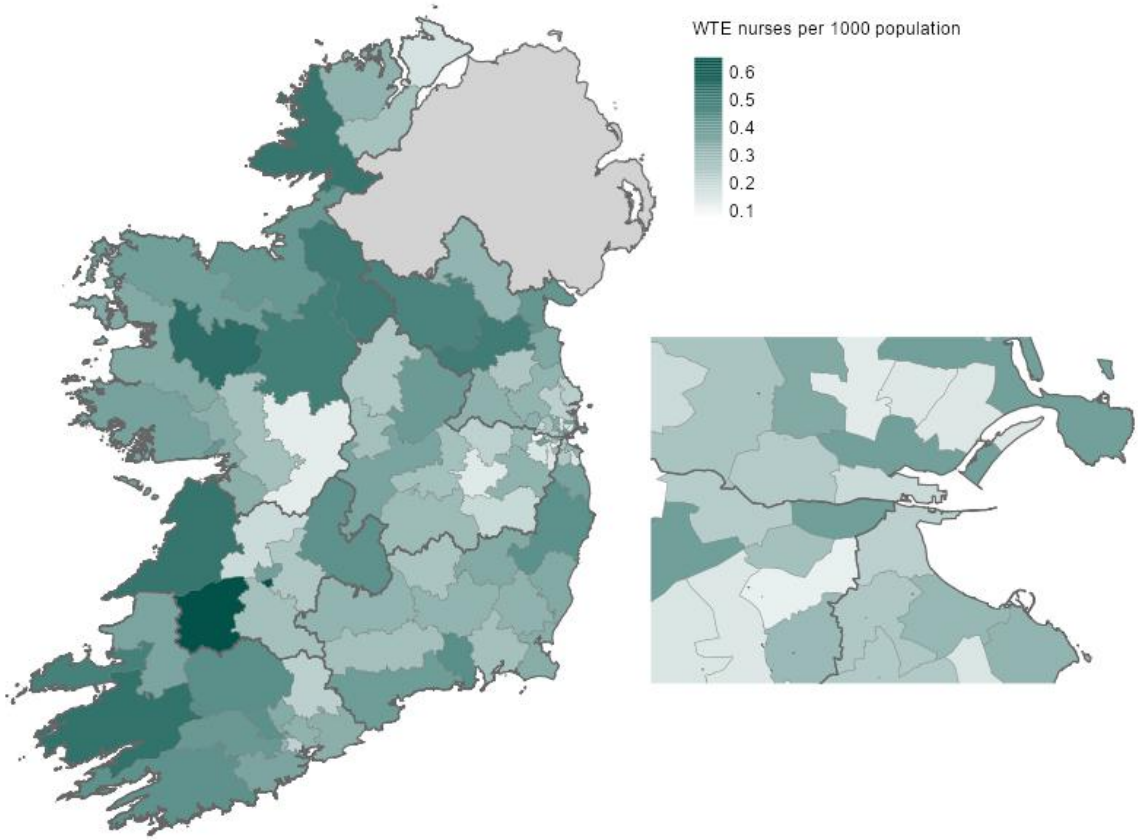
The concern around low WTE GP estimates is exacerbated in areas around Meath, Leitrim, Kildare, and Wexford because of their relatively high population growth.

4.1.3 Regional Supply of GPNMs. As with GPs, there is considerable variation in the GPNM regional estimates. This analysis concerns a 76% subset of observed GPNM, with an assumption that observed GPNM scale homogenously to population figures. The figure shows the number of WTE GPNMs per 1000 people in each Community Health Network (CHN). Lucan[8] has the lowest number of GPNMs on a regional population basis – 0.07 GPs per 1000 people – which is around 72% lower than the national estimate of 0.25. The scale of this shortfall highlights the high degree of variance observed regionally. It could also reflect a bias wherein unobserved GPNM are overly represented in this area. Excluding Dublin, other CHNs where there are low rates of WTE GPNM relative to the population are East Galway and South Roscommon, West and Central Kildare, Inishowen, and East Clare.

Where GPs are under constrained capacity national regression analysis indicates that GPNM figures typically increase given there is an ageing population.

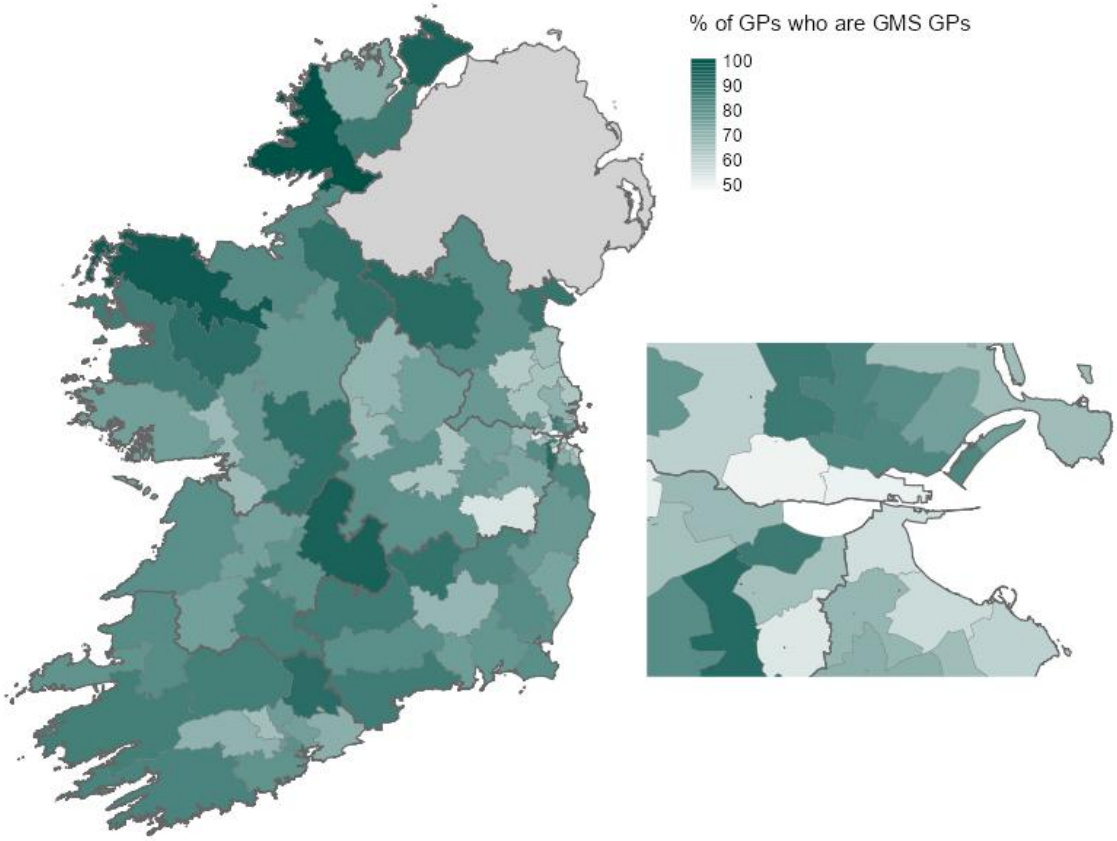
4.1.4 GPNM and GP interaction. Where GPs are under constrained capacity owing to ageing populations, regression analysis indicates that GPNM figures typically increase. In areas around Leitrim and Cavan, high GPNM figures may be helping to compensate for lower GP supply. However, there are some areas, like East Clare and East Galway and South Roscommon, where the number of both WTE GPs per capita as well as WTE GPNM is low. Areas around West Limerick, East Mayo, South Kerry, and West Donegal have a high number of GPNMs for their populations, with estimates ranging from 0.52 to 0.65 GPNMs for every 1,000 people. Given supply constraints in areas around West Limerick, there could be people from neighbouring regions travelling in for care that the high GPNM supply is helping to accommodate.

Figure 4.2 Map of WTE GPNM per 1000 people, at a CHN level



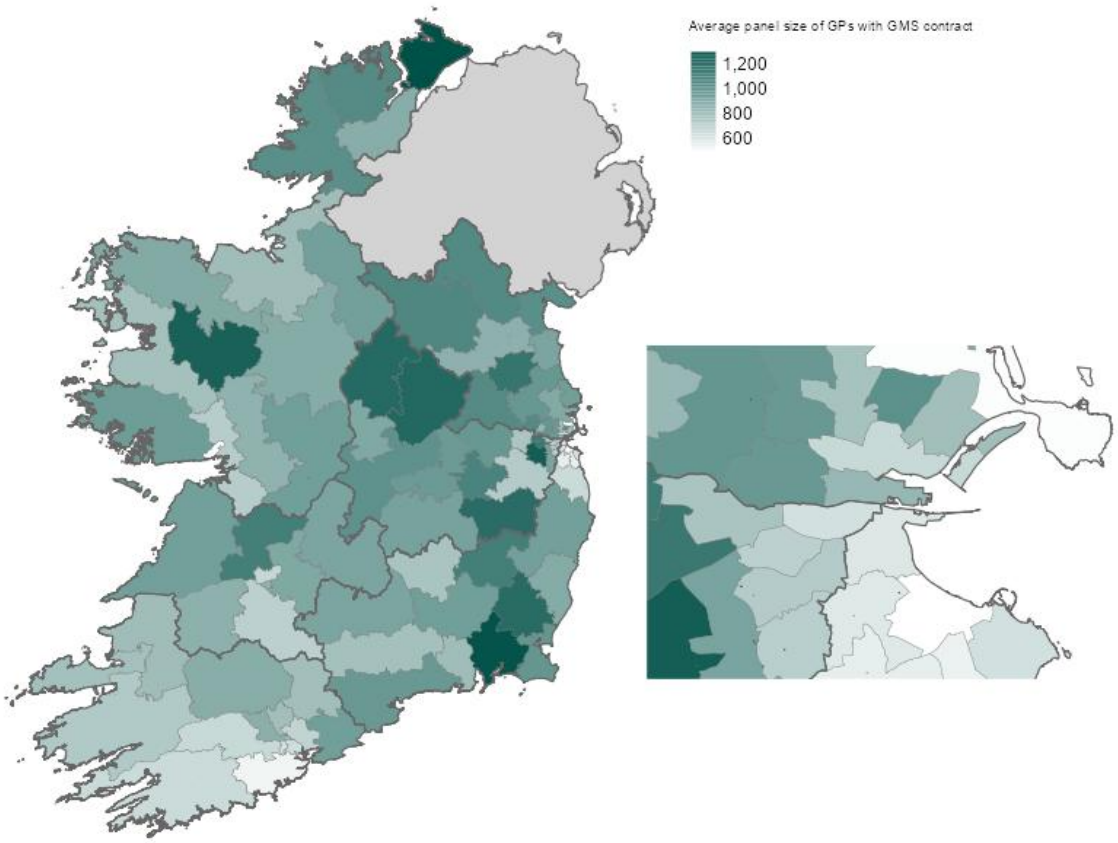
4.1.5 Regional Uptake of the GMS Contract – GP level. There is reasonable uptake of the GMS contract nationally with approximately 75% of all standard GPs holding a GMS contract. Figure 4.3 maps the percentage of GPs with a GMS contract by CHN. Low uptake of the GMS contract regionally could be for two reasons: (1) the area is affluent with a low cardholding population so the GP responds by not taking up a GMS contract or (2) GPs have not taken up GMS contracts despite practising in areas with considerable cardholding populations. South Dublin and Dún Laoghaire are examples of the former, whereas areas around Meath, Offaly and Laois, east Kildare and central Cork may be examples of the latter. West Donegal, North Mayo, North Tipperary, and areas around Leitrim and Cavan have relatively higher GMS uptake rates ranging from 89% to 100%. At a practice level, the GMS contract uptake increases: 90% of practices in the country have at least one GMS contract-holder. Around East Offaly and North Laois as well as east Kildare, practice uptake looks better relative to individual GP uptake. It may be that to minimise administrative burden, contracts are administered at a practice level.

Figure 4.3 Map of the proportion of GPs who have a GMS contract, at a CHN level



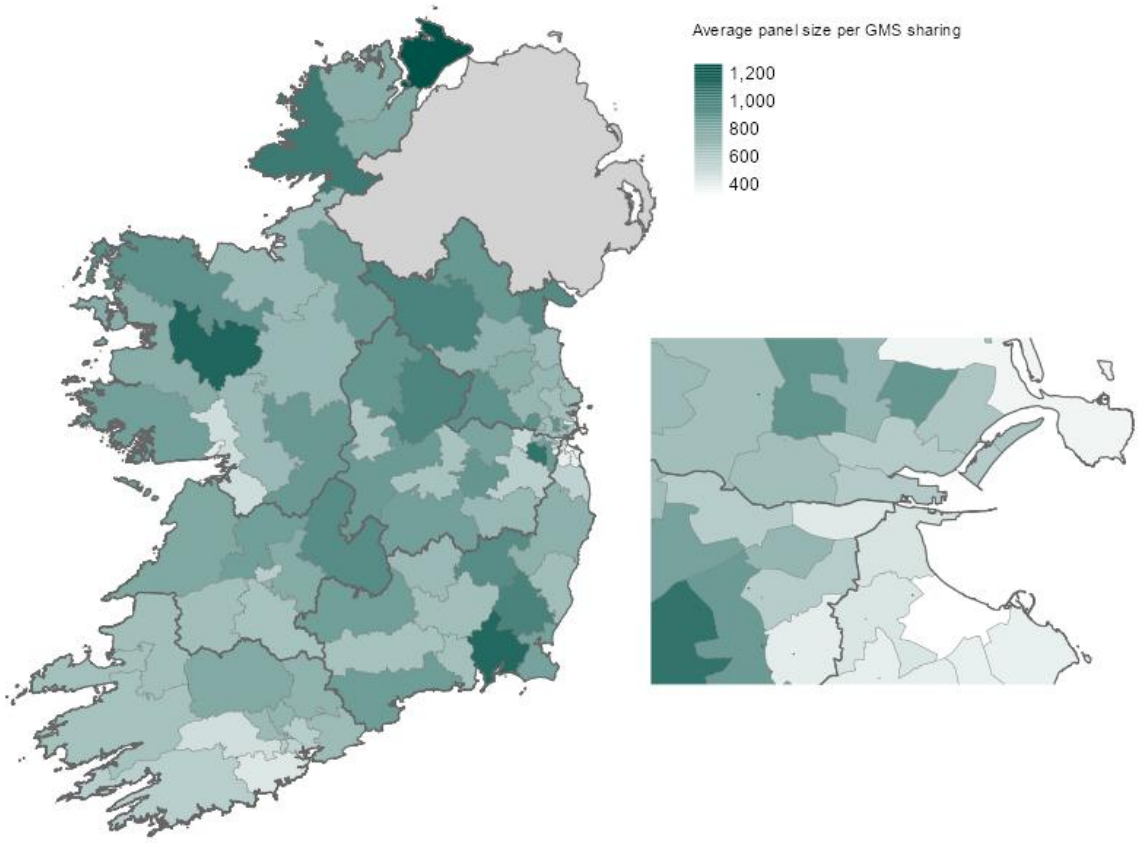
4.1.6 Panel sizes. Figure 4.4 illustrates the average panel size (number of patients who hold a Medical or GP Visit Card) for a GP with a GMS contract by CHN. Inishowen has the highest average panel size of 1,352 people per GP with GMS, approximately 38% higher than the national average of 843 people per GMS GP. This is after the high GMS contract uptake from GPs in Inishowen indicating a low count of WTE GPs per 1000 people in the area and a relatively high number of people on panels. Along with Inishowen, East Mayo is another example of a region where GPs are responding to service demand in their area for contract uptake. In contrast, South Dublin has one of the lowest average panel sizes (630 – 34% lower than the national average), which corresponds with the low GMS uptake by GPs in the area. However, not all areas see GPs responding to service usage. In areas like South Kildare and West Wicklow, which have high panel numbers, there is low GMS uptake among GPs in the area.

Figure 4.4 Map of the average panel size of GPs who have a GMS contract, at a CHN level



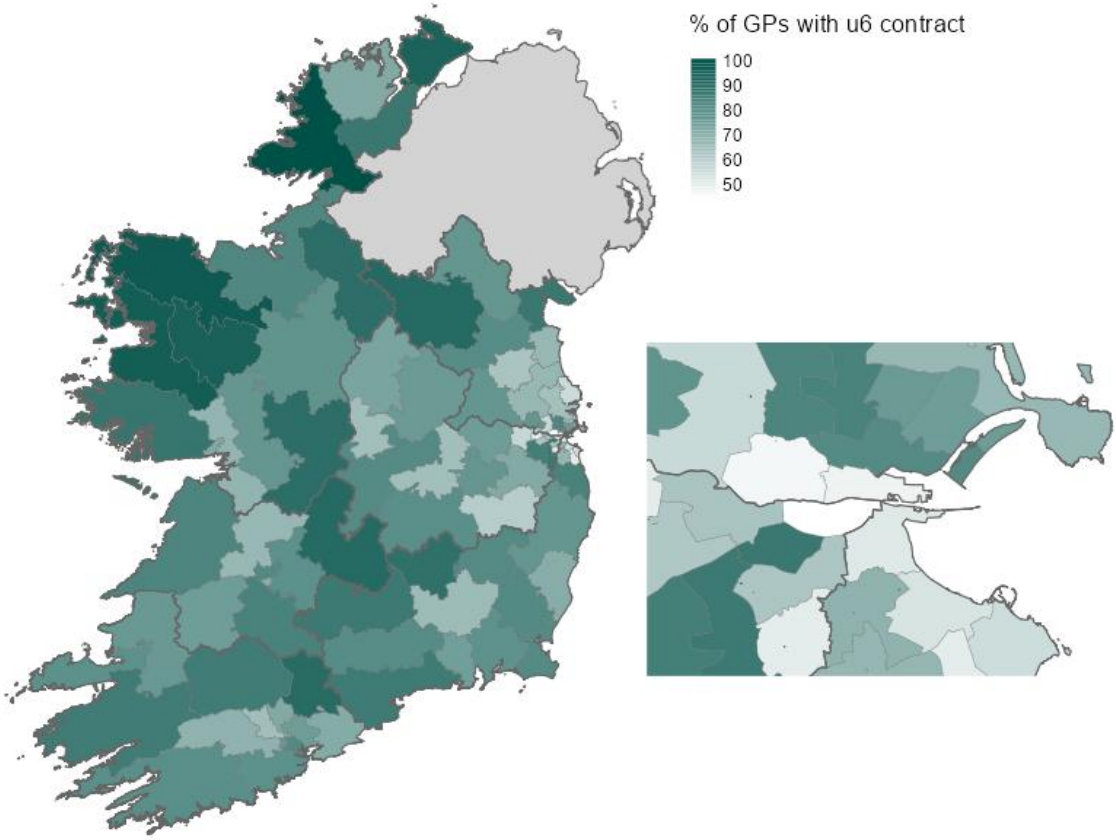
4.1.7 De-facto practice-based contracts. There is indication that some GPs may be providing the services through a de facto practice-based contract, despite not holding a given HSE contract administratively, as discussed in previous chapters. To account for this, we aggregate panels across each practice and examine panel size relative to the total number of GPs within the practice. This is available in Figure 4.5. Many areas with high average panel sizes at a GP-level continue to have high panel sizes even when the de facto practice contract assumption is applied. In East Mayo, Inishowen, and South Wexford, average panel sizes remain high. In some areas around Westmeath and Longford and south Kildare, where larger average panel sizes for GPs with GMS contracts were observed, contract-sharing within practices lessens the impact. In areas where average panel sizes remain high regardless of contract-sharing – North Donegal, East Mayo, and South Wexford – there is a high density of panel numbers as a proportion of population and a low number of WTE GPs per 1000 persons.

Figure 4.5 Map of average panel sizes given de-facto practice-based contracts, at a CHN level



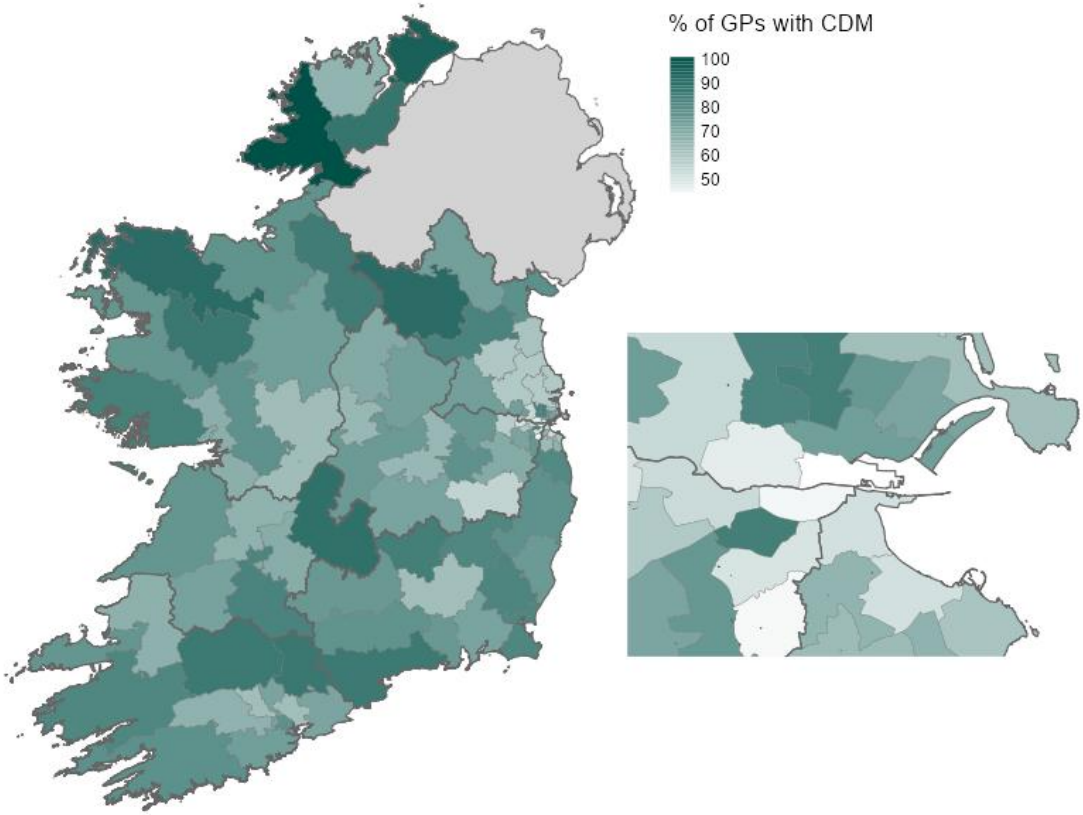
4.1.8 Regional uptake of Under-6 contract. There is a 73% uptake of the Under-6 contract nationally, with little difference from the GMS contract, both nationally and regionally. In Dublin, areas around the Inner City, Lucan, and Dún Laoghaire have the lowest uptake and outside Dublin, areas around Kildare, Central Meath, and Offaly have the lowest uptake rates. As with the GMS contract uptake, Kildare and central Meath stand out given the relatively high population growth and large population of young children in these areas. As with the low-uptake areas, the high uptake areas are also similar to the GMS contract – West Donegal, Mayo, North Tipperary, and Cavan have some of the highest uptake rates of the Under-6 contract in the country.

Figure 4.6 Map of the proportion of GPs who hold an under 6 contract, at a CHN level



4.1.9 Regional uptake of CDM contract. There is a 70% national uptake rate for the Chronic Disease Management (CDM) contract with regional variation similar to the Under-6 contract. It is important to note that the data is from mid-2022 and as a newer contract, uptake has likely since increased. In areas with large older populations like West Donegal, Mayo, and east Cork, uptake is high ranging from 86% to 100%. Conversely, in younger areas around Kildare and Meath, GPs are potentially responding to local population characteristics with low uptake of the CDM contract. However, as is the case with the Under-6 contract, there are cases where some mismatch in GP contract uptake and local population need is evident. In areas with older populations around East Galway and South Roscommon and Wexford, CDM contract uptake is low. We see a pattern of higher contract uptake in neighbouring areas, like North Tipperary for South Roscommon and Waterford for Wexford, which may indicate some supply reinforcement through users' mobility.

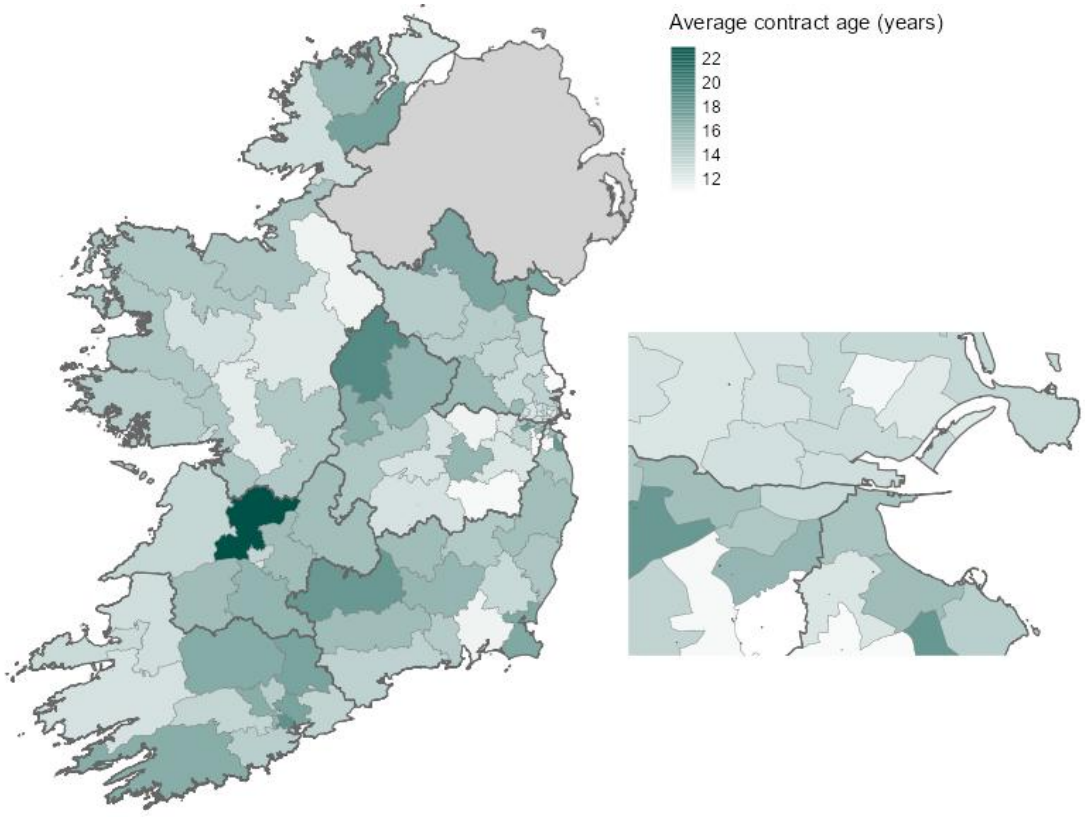
Figure 4.7 Map of the proportion of GPs who hold a CDM contract, at a CHN level



4.1.10 Regional differences in the age of HSE contracts. The approach to identifying GP age using HSE contract duration was discussed earlier in the paper. We highlight that the estimate likely pushes the centre of the distribution upwards and towards a younger age. However, assuming that this bias arises consistently across regions, contract age is useful for comparing the relative age of GPs between areas. Figure 4.8 shows the average contract age in years across the CHNs. In East Clare the average contract age (approximately 23.4 years) is 65% higher than the national average of 14.2 years and 23% higher than the second-highest average contract age of 18.9 years around Longford and Westmeath. This compounds risk in East Clare where the lowest WTE GPs per 1000 people is also evident (0.35 - 63% below the national average). Together this likely indicates that GPs are deferring retirement in an area with supply constraints. Earlier regression analysis showed that young GPs are generally moving into areas of capacity constraints. With West Clare having a lower than national average contract age (13.3 years), it may be that younger GPs are moving into Clare but preferring to establish practice towards the west of the county.

In East Clare where there are significant supply constraints, GPs are deferring retirement. It may be that younger GPs are moving into Clare but preferring to establish practice in the West.

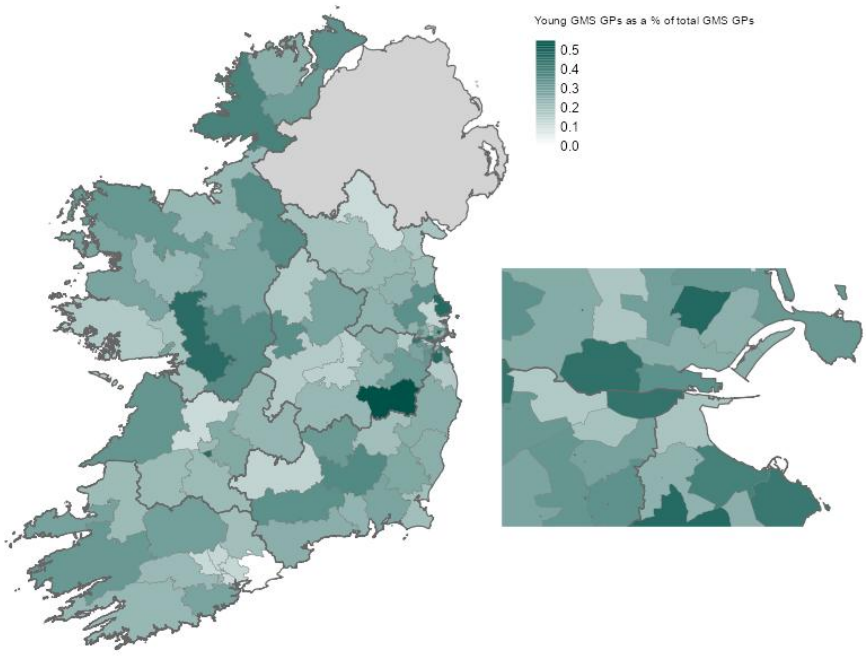
Figure 4.8 Map of HSE contract age, at a CHN level



4.1.11 New GPs. Areas within Tipperary, Cork, Monaghan, and Donegal show a relatively higher contract age and thus, potentially an older GP population. These areas also experienced either low or negative population growth between 2016 and 2022 and have relatively large older populations. However, as shown in Figure 4.9, young GMS contract-holders are also selecting into these or neighbouring areas such as areas around West Donegal, Bandon and Mallow, Kilkenny, and South Tipperary. Their selection decreases the risk of older-age cohorts being left with a GP supply approaching retirement. Nonetheless, people may defer or skip care because of travel requirements. Older-age cohorts, especially, may find it difficult to travel to visit a GP and it may be more time-consuming for a GP to make a home call in these areas. In North Tipperary and Monaghan, where WTE GPs per 1000 people is already lower than average, there may be a growing need for new GPs. Figures from the Medical Council (Department of Health, 2023, Correspondence) suggest that on a county-level, Monaghan and Clare, have around half of the self-reported GPs in the 55+ age category. Therefore, even with the assumptions in our estimates around contract age and GP age, and lack of visibility over private providers, some counties may have an older GP workforce that require a younger staff to sustain the local service usage.

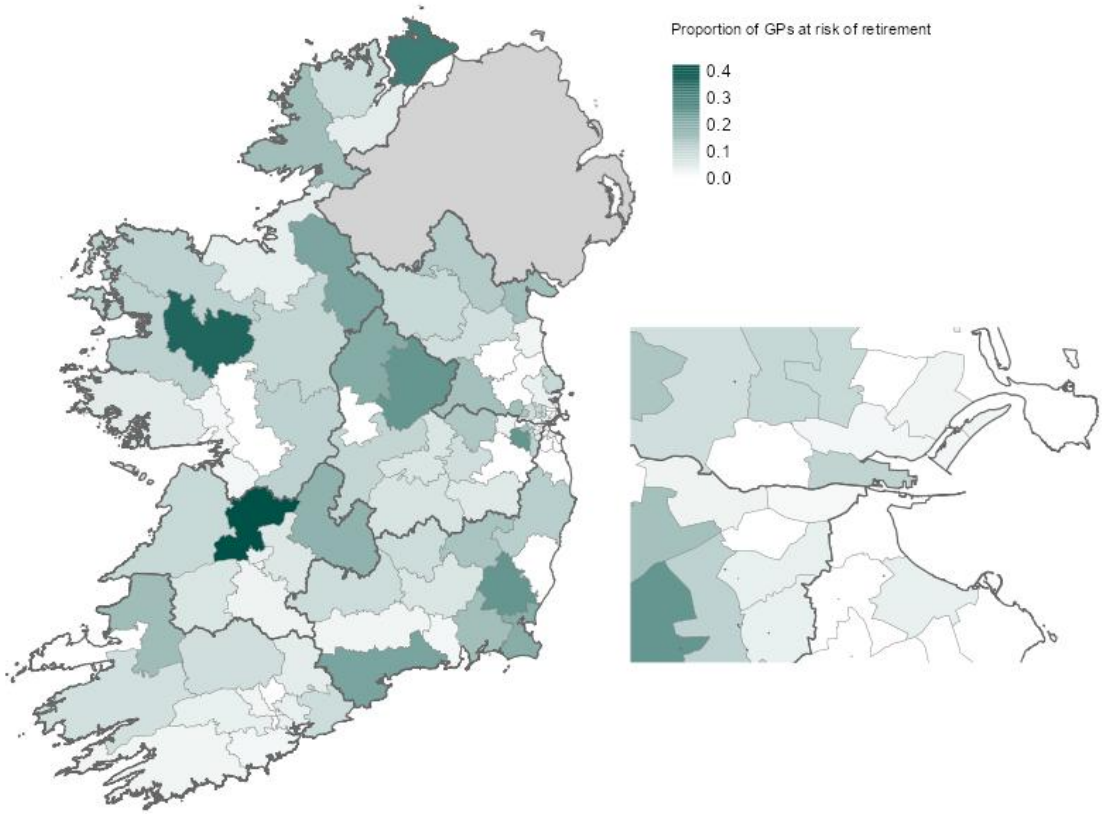
Around Tipperary, Cork, Monaghan, and Donegal where young people are moving out, so are young GPs. This is being counteracted by young GPs selecting into neighbouring areas.

Figure 4.9 Map of newer GMS contractors relative to all GMS contractors, at a CHN level



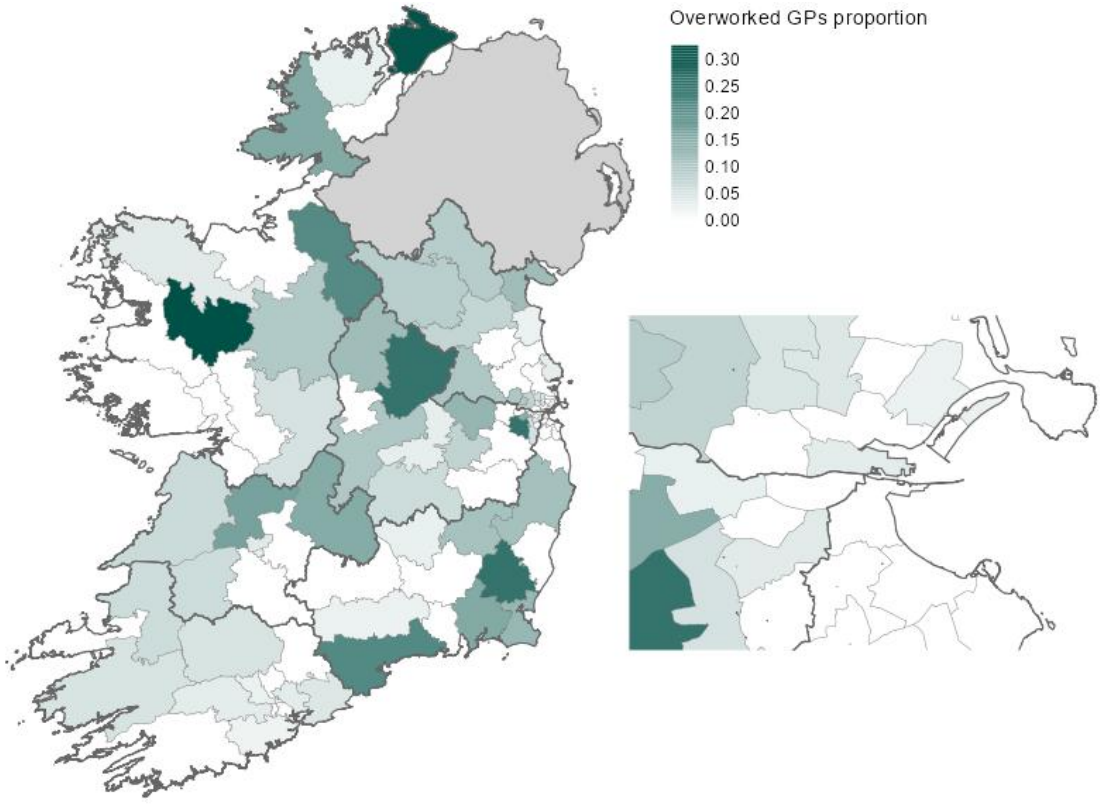
4.1.12 Areas where GP retirements may constrain supply. Our analysis of the regional age profile of GPs, using their contract age as a proxy, highlights the need for a better understanding of upcoming retirements. To identify areas at risk of succession planning, we consider two factors: GPs nearing retirement and the availability of a viable replacement. The composition of this "at risk" variable is described in Chapter 3. Figure 4.10 maps CHNs by GPs at risk of succession planning as a proportion of total GPs. Due to data constraints, we only consider practices with at least one GMS contract – 90% of all total practices. The highest proportion of GPs at risk of retirement with no viable replacement are found in East Clare, East Mayo, Inishowen, and around Wexford and Westmeath. As seen in Figure 4.9, fewer younger GMS contract-holders are moving in to all these areas. While East Clare and areas around Westmeath have low WTE GPs per 1000 people, pointing to an issue with workforce availability, areas around Mayo, Donegal, and Wexford have high average panel sizes, suggesting pressures from service usage of the population.

Figure 4.10 Map GPs at retirement age, at a CHN level



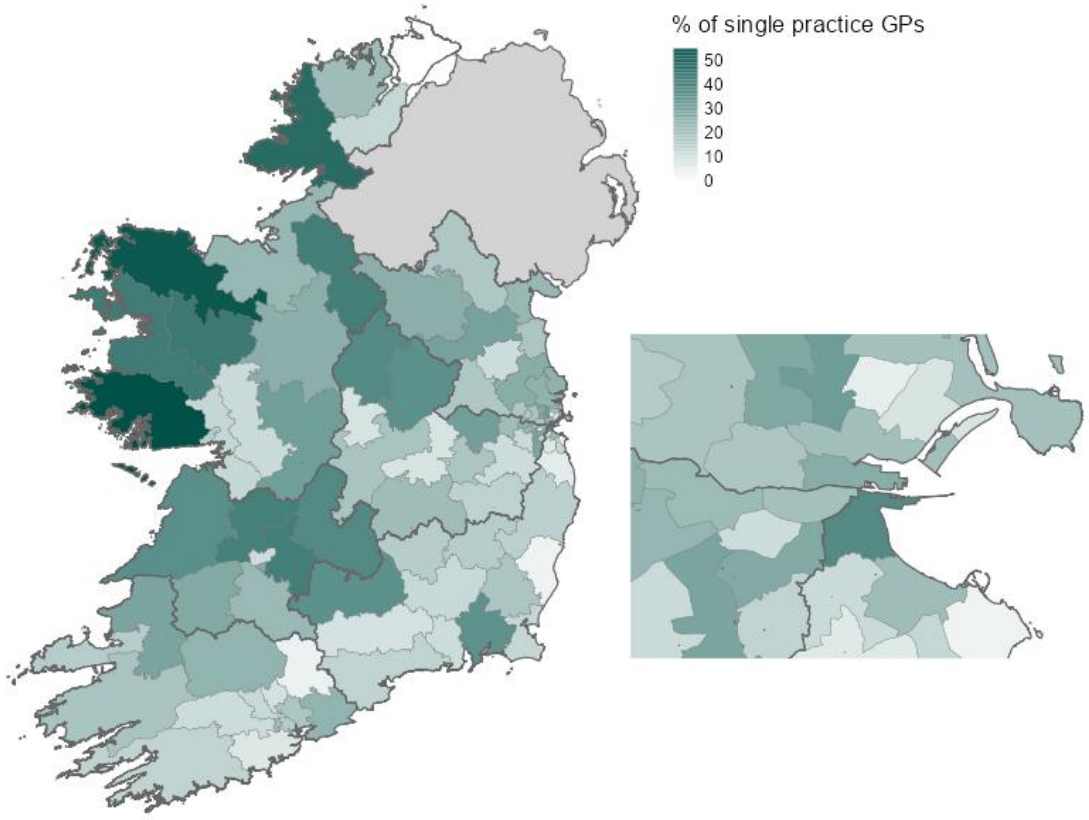
4.1.13 Stressed panels. Allowances paid to GPs under the GMS contract are capped at 1,500 patients (ranging from 100 to 1,200 for some allowances). Thus, for panels of 1,200 to 1,500, there is a decreasing rate of increase in payments to GPs as only fee lines (linked to capitation and demand-led services) continue to increase. Thus, we consider a panel size at or above this range as reflecting GP response to demand rather than financial incentives. Based on estimated consultation numbers between private and public patients (using PCRS, Census, Healthy Ireland 2019 and 2022), we set 1,300 public patients as a marker for a high public patient panel. This does not reflect the demographic spread of a given GP's list, in terms of both age and card-status, so actual workload may differ by region. Figure 4.11 shows the prevalence of relatively "under pressure" GPs by this definition as a proportion of the total. This analysis highlights some of the analytic leaps required to get to this point – we have no sight on the distribution of the private patient pool and regional working hours. As such, while the available information highlights that these regions may be at risk in terms of capacity, there is a great deal of uncertainty underlying the results. Areas that show a high proportion of under-pressure GPs are areas around Inishowen, West Donegal, East Mayo, East Clare, Central Wexford, East Westmeath, and West Waterford. These regions have been flagged before. In CHNs with low capacity, neighbouring areas show more capacity. North and East Donegal, West Mayo and Tuam, West Clare and East Limerick, North Wexford, and North and Central Waterford have relatively fewer GPs under constrained capacity.

Figure 4.11 Map of "under-pressure" GPs as a proportion of the total, at a CHN level



4.1.14 Practice compositions and prevalence of single practices. While multi-GP practices are the majority, aggregated data masks regional variance. Figure 4.12 maps the proportion of GPs in single practices by Community Health Network (CHN). Regionally, West Galway, Mayo, West Donegal as well as areas around Clare, East Limerick, Tipperary, Wexford, and Leitrim show a high proportion of single-practice GPs. Around Mayo, Clare, Wexford, Tipperary, and Leitrim, we showed a high proportion of GPs at risk of retirement. These areas also have a high proportion of under-pressure GPs. Leitrim, West Galway and North Mayo have also experienced high population growth so not only is there a risk of GP workforce decreasing in the coming years, there is likely to also be high and growing service usage. Should either of these issues arise, there will be areas lacking appropriate coverage of general practice services. In some areas, like North Mayo, West Clare, West Donegal, and Leitrim, there is a high number of WTE GPNM per 1000 population potentially as a support for single-practice GPs. While short-term spikes in service usage could be provided for, ensuring long-term continuity of care necessitates restructuring to multi-GP practices.

Figure 4.12 Map of GPs in single practice as a proportion of all GPs, at a CHN level



4.2 REGIONAL CAPACITY IN CONSULTATION TERMS

In this section

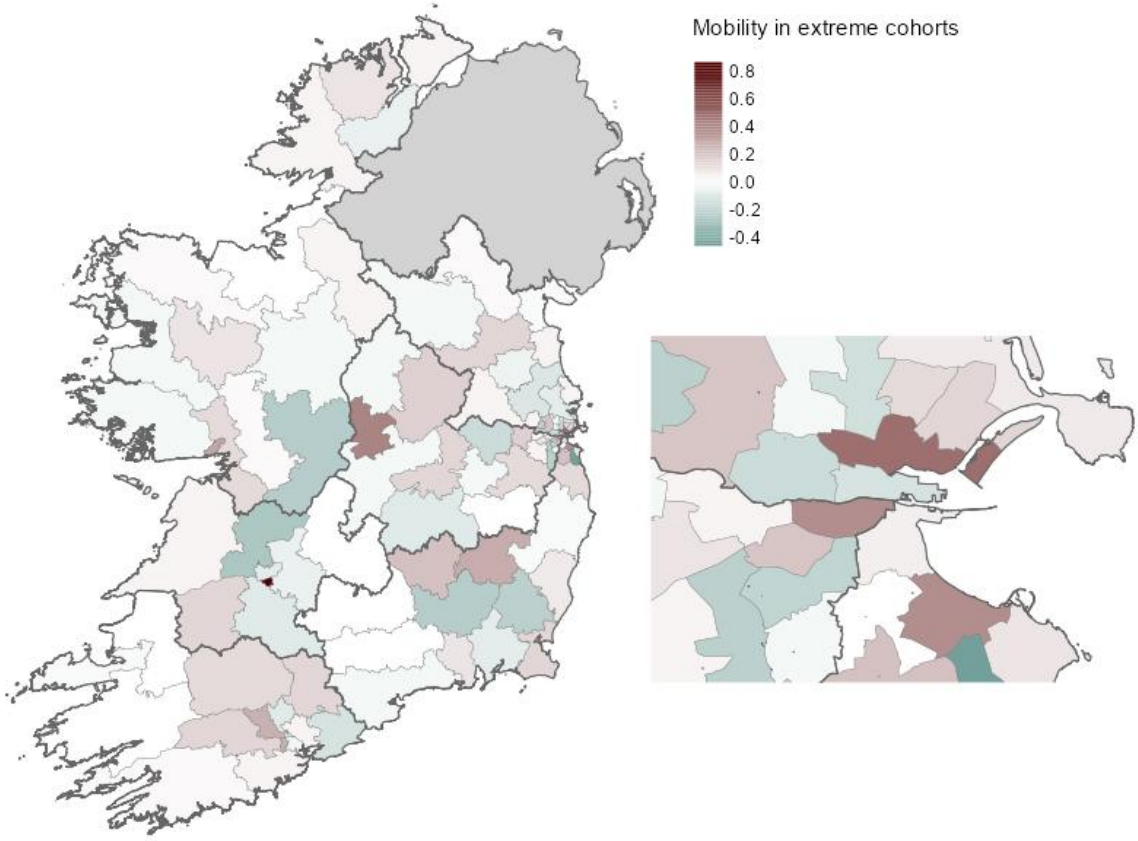
Capacity in general practice with respect to GP consultations now and under scenarios accounting for WTE and complexity.

Consultations vary in number, duration and complexity by age, gender and card status and in turn the demand for GPs is affected by the number and demographics of the population.

4.2.1 Conversion to consultation terms. We emphasise that discussion on the capacity of GPs is best reflected in terms of consultation load. The number, duration and complexity of consultations varies by age, gender and card status. This, in turn, significantly affects the demand for GPs which is influenced by demographics. Chapter 2 includes detailed descriptions of how consultation numbers are derived.

4.2.2 Methodological caveats and mobility. As detailed in Chapter 2, 25 thousand people in the Census 2022 population estimates cannot be assigned to specific regions. This discrepancy arises from matching administrative data from PCRS to Census 2022 populations, and is in the age groups that have 100% entitlement: individuals aged 0-4 and 70+. While some regions show an excess of population, others show a deficit resulting in an aggregated deficit of 25,000 people in our analysis. Figure 4.13 maps the proportion of these discrepancies, between PCRS and Census numbers, by the population as a proxy measure for mobility in service usage in groups with a 100% card entitlement. Green shows areas with fewer people on GP panels than population numbers while red indicates areas with more people on GP panel than population numbers. Green areas indicate where local population may be visiting the GP outside the local area and areas in red where persons from neighbouring areas may be visiting the given area's local GP. In some CHNs with known capacity constraints, such as East Clare, we observe 100% card-entitlement cohorts perhaps seeing GPs in West Clare, south in Limerick, or north in Galway where panel numbers for the given cohorts exceed population numbers. This indicates that where service usage is constrained, people don't necessarily go to the nearest GP. In contrast, areas around Southeast Wexford which also face capacity constraints due to low WTE GPs, show a relatively high proportion of given age cohorts visiting the GPs in Southeast Wexford, a high capacity area. While our mobility estimates are in no way perfect or complete, they show the dynamic nature of service usage in general practice.

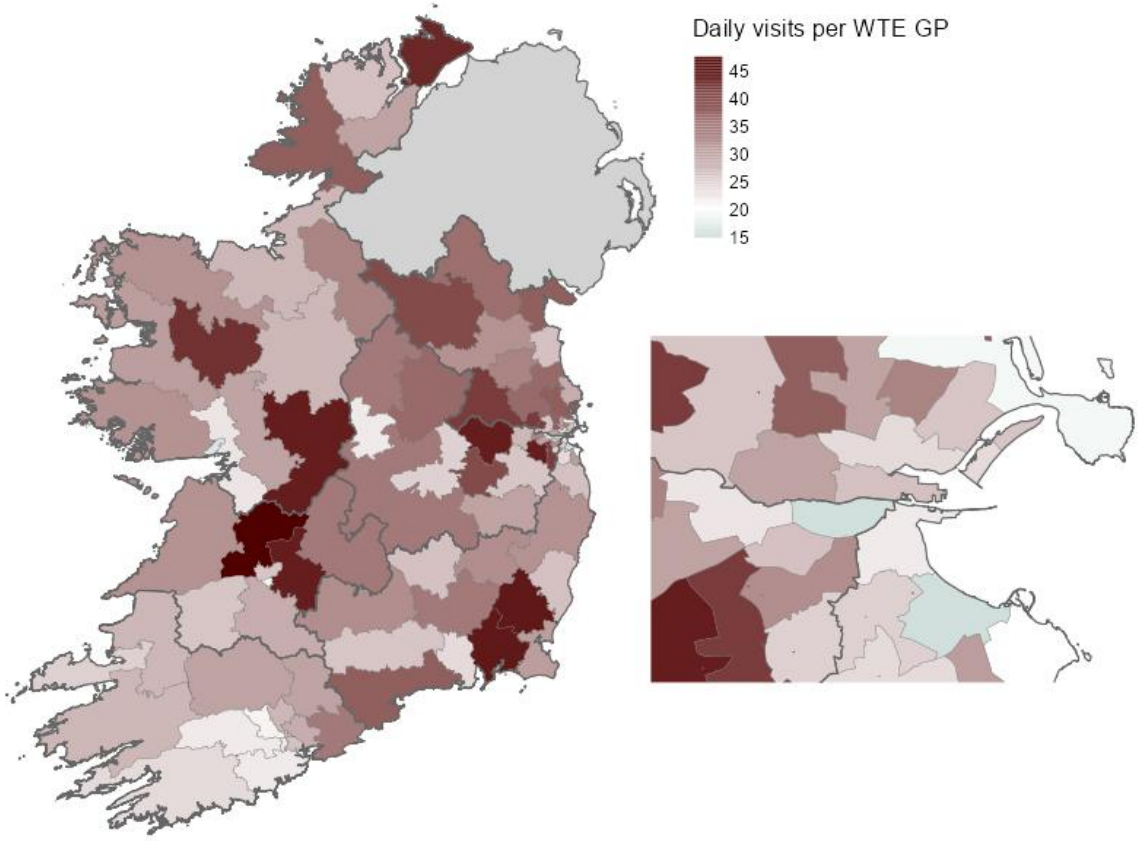
Figure 4.13 Map of mobility for GP access in 0-4 and 70+ age groups, at a CHN level



4.2.3 BMA-indexed consultation levels. The British Medical Association (BMA) recommends a limit of 20 semi-complex and 25 routine consultations daily. This benchmark provides an objective criterion for comparison rather than using the national average. Given the demographic and health policy differences between the UK and Ireland, there may be differences in the nature and volume of GP consultations. Between the two countries, different types of people may be going to the GP for different reasons. Thus, in the absence of alternative benchmarks, caution must be exercised in interpreting our analysis as a definitive ideal for GP workload. We set 20 consultations as a benchmark for workload levels when estimating our standard consultations and 25 consultations for our estimates of complexity-adjusted consultations. The threshold for BMA-indexed workload changes between these two measures because standard consultations do not adjust for complexity of care whereas complexity-adjusted consultations do. For example, in complexity-adjusted consultations, we incorporate the extra length of home visits compared to an average, routine consultation in our total consultation estimate.

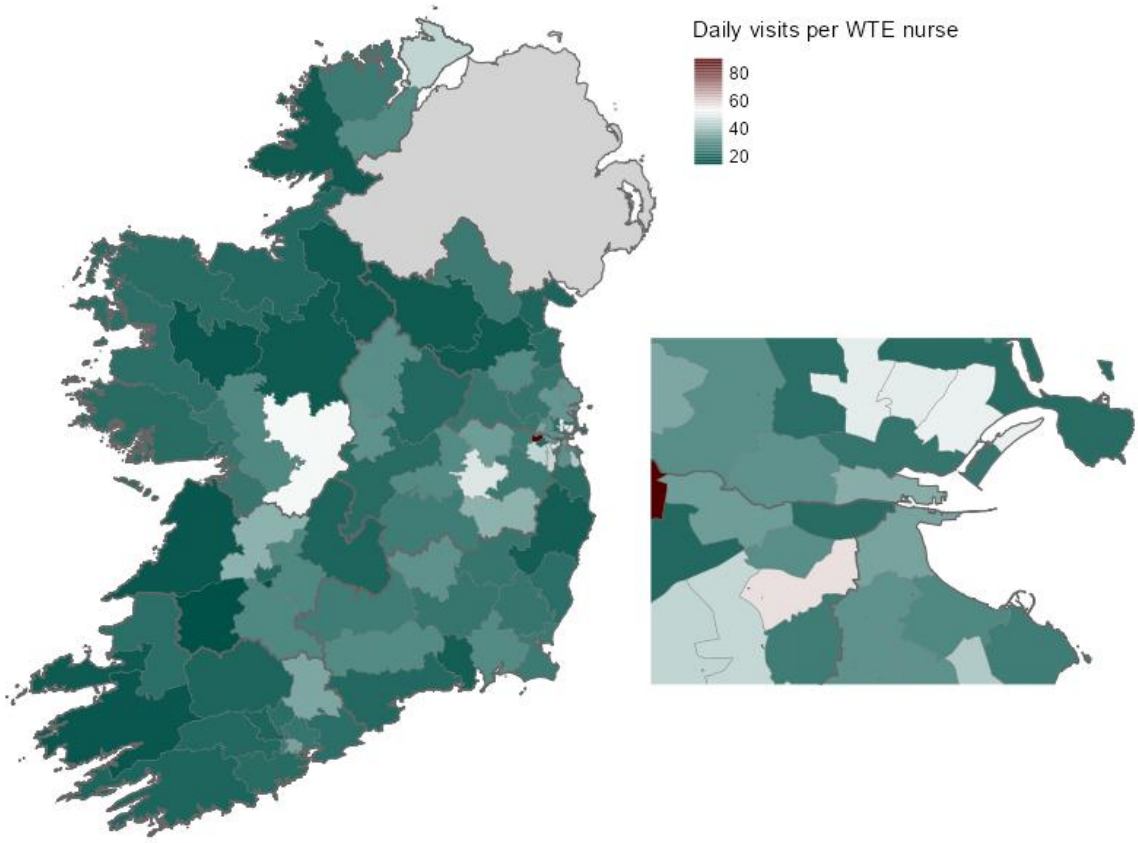
4.2.4 Consultation load per WTE GP. East Clare has the highest number of daily consultations in the country (49 against an average of 29). Other areas with high daily consultations are around Wexford, East Limerick, East Galway, Kildare, Inishowen, and East Mayo with daily consultations ranging from 46 to 43. Not only do these areas have some of the lowest WTE GPs per 1000 people, they are all areas of high service usage. Wexford, Inishowen, and East Mayo have some of the highest panel numbers as proportion of population and as shown in Section 2.1.4, cardholders have consistently higher service usage than non-cardholders. Kildare and Wexford, on the other hand, have high rates of population growth with a predominance of young families. Children and young women have high frequency GP visits. CHNs with the lowest daily consultation per WTE GP are areas around South Dublin, South Limerick City, and West Galway City. These are the only CHNs that show BMA-indexed working levels in the country. However, given the relatively small size of these CHNs, results should be interpreted with caution. Relative to the country, rather than the BMA benchmark, areas around Cork, Kerry, Wicklow, and Waterford have relatively lower numbers of daily visits per WTE GP.

Figure 4.14 Map of daily consultations per WTE GP, at a CHN level



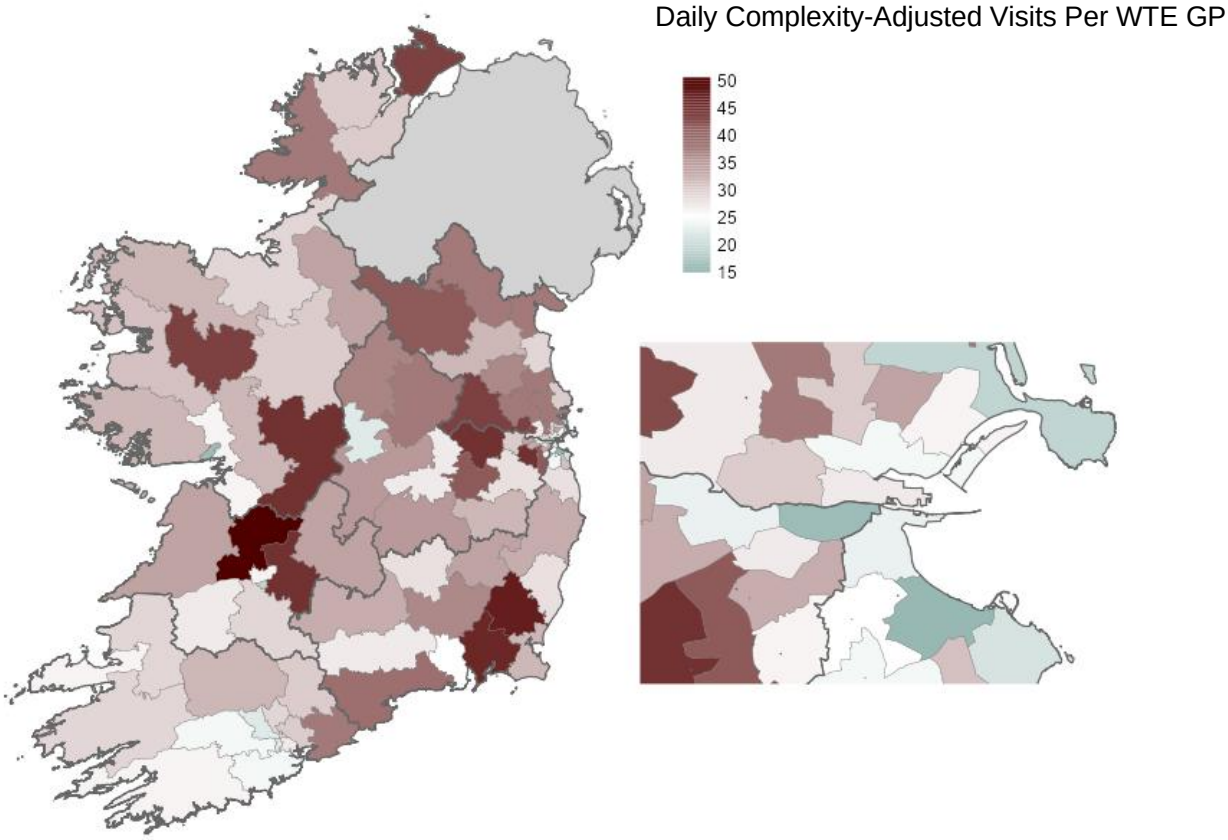
4.2.5. GPNM consultations. There is no benchmark for GPNM consultations but they are mapped regionally for comparison purposes. Any interpretations should be caveated with our underestimation of GPNM figures. Figure 4.15 shows the daily consultations per WTE GPNM. Excluding areas with smaller scales, where results may not be interpreted reliably, East Galway and South Roscommon as well as West and Central Kildare have the highest daily visits per WTE nurse. This is not a surprising finding, given the low number of WTE GPNM per 1000 persons in these areas. Generally, areas with relatively high number of WTE GPNM per 1000 persons tend to have low daily visits per WTE GPNM. However, there are some exceptions. For example, even though West Clare and South Kerry have relatively fewer WTE nurses per 1000 people than West Limerick, they have similar daily visits per WTE nurse. This may be because of higher service usage for GPNM in these areas.

Figure 4.15 Map of daily visits per WTE GPNM, at a CHN level



4.2.6. Complexity-adjusted consultations. Population demographics affect the duration of consultations as well as frequency. Fig 4.16 maps daily complexity-adjusted consultations per WTE GP in each CHN. The rationale for changing the yardstick of BMA-indexed workload to 25 daily consultations is best evidenced in areas around Cork and Kerry. While consultations in Bandon move from more than BMA-indexed working levels to slightly fewer, consultations in West Cork and South Kerry remain higher than BMA benchmark. This is because Bandon has a lower than average proportion of people aged 70+ within the population, and West Cork and South Kerry have higher than average estimates. By scaling all types of consultation to a routine consultation, it makes sense to compare it to a threshold for routine consultations.

Figure 4.16 Map of daily number of complexity-adjusted consultations per WTE GP, at a CHN level



4.2.7. How many GPs are required to achieve BMA-indexed working levels? Workforce requirements to achieve BMA-indexed working levels change as complexity is adjusted. Fig 4.17 maps indicative requirements which, for reliability, have been scaled up to a county level. To reiterate, our estimate for WTE is national and applied uniformly across regions – the true workforce requirements of an area can vary depending on GPs' working hours. For example, if GPs in Clare work longer hours than those in Dublin, we would have underestimated workforce requirements for Clare and overestimated for Dublin. The surplus, indicated by negative numbers, should be interpreted with caution because working hours and mobility in service usage, are not visible. An area may show a surplus of GPs when in reality, it provides GP service for neighbouring areas, not visible and accounted for in our estimates.

It is more reliable to focus on complexity-adjusted consultations in the last column to understand how many GPs are required to achieve BMA-indexed working levels after accounting for complexity of care and GP working hours. On an absolute basis, Dublin, Meath, Kildare, Wexford, and Mayo require the highest number of GPs. Relative to regional populations, Meath, Cavan, Leitrim, Clare, and Monaghan require the highest number of GPs. Within Dublin, areas around Citywest and Swords require the highest amount of reinforcements. Southwest, east Meath and areas around Clonee have high workforce requirements as well as West and Central Kildare and East Mayo. The importance for granularity is reinforced in Waterford and Limerick's cases which, as counties, show some of the lowest numbers of workforce requirements, but parts of their regions, as indicated in earlier analyses, require higher support.

Counties	Standard Consultations (20 consultation yardstick)		Complexity-adjusted Consultations (25 consultation yardstick)	
	Headcount GPs Required	Headcount GPs Required w/ WTE	Headcount GPs Required	Headcount GPs Required w/ WTE
Carlow	12	24	1	11
Cavan	19	34	7	19
Clare	28	51	10	28
Cork	5	111	-66	23
Donegal	30	63	3	30
Dublin	47	301	-113	101
Galway	-8	43	-46	-5
Kerry	9	38	-14	9
Kildare	40	82	6	40
Kilkenny	20	38	5	20
Laois	14	30	0	13
Leitrim	8	15	3	8
Limerick	3	43	-29	3
Longford	9	18	2	9
Louth	18	44	-4	17
Mayo	32	58	9	31
Meath	52	89	22	52
Monaghan	15	27	5	14
Offaly	13	28	1	13
Roscommon	10	23	0	10
Sligo	4	17	-6	4
Tipperary	28	59	2	27
Waterford	4	29	-16	4
Westmeath	11	30	-5	10
Wexford	34	65	10	34
Wicklow	15	43	-7	15

Figure 4.17 GP workforce requirements for counties

4.3 REGIONAL CAPACITY UNDER EXPANSION OF ELIGIBILITY

4.3.1 Induced demand under eligibility expansion. The future of GP demand likely has two major drivers – changing demographics and expanded eligibility to free GP care. We consider the impact of a significant driver of demand: the universal expansion of free GP care. To assess this, induced demand under eligibility expansion must be estimated. McDonnell et al. (2022) show a 20% to 21% increase in GP visits upon the expansion of GP visits cards to the under sixes (up to 29% in out-of-hours care) – this is a natural experiment with a strong methodological framework. For persons aged over 50, gaining a medical card or GP visit card is associated with a 43% increase in GP use (Nolan et al, 2016). This reflects an upper bound estimate owing to sample selection arising from the methodology. Gorecki (2018) further highlights that other estimations of induced demand in Ireland of 40% to 60% are upper bounds arising from sampling issues and the pooling of medical cards and GP visit cards. Of note, many of the studies in the literature do not consider the long-term effects of eligibility expansion. The Carr-Hill formula in the UK is modelled around a peak in care upon gaining eligibility or access to services that declines after the first year. As such, we apply a unilateral increase in demand of 30% on all currently private patients (thus we include persons who are already eligible but do not hold cards). This does not increase system level demand by 30% but rather by 12%, reflecting the fact that the initiative would largely affect those aged 6 to 70 who do not currently have cards and have lower consultation numbers. Total complexity-adjusted consultation numbers rise by approximately 13.5% to 21.8 million and roughly align with other projections (Connolly et al., 2023).

To examine the impact of universal eligibility on capacity, we induce demand of 30% on consultations by all private payers.

4.3.2 Impact of eligibility expansion on consultation workload. In response to increased universal access, people would visit the GP approximately 4.2 times annually, and the average consultation rate of a WTE GP would increase from 29 to 33 per day. We assume that the private market is incentivised into joining the public market under a single-buyer view. However, we caution in section 2.1.2 that this may not be the case under a restricted expansion of eligibility. When observing complexity-adjusted consultations under universal access, we find that some Dublin areas, namely Drumcondra, Ballinteer, and Palmerstown, and areas around Blarney and West-Central Cork, move from less than BMA-indexed working levels to relatively higher workload for GPs. At the county level, Galway is the only county with sub-BMA-indexed working levels under current coverage but as we move to universal coverage, daily complexity-adjusted visits increase from 24 to 28. It is expected that regions with currently lower panel sizes, like East Clare and East Limerick, will experience larger increases in service usage relative to current estimates. Workforce requirements, by county, under universal access and safe consultation levels are modelled in Table 7. The highest number of WTE GPs required are in Dublin, Cork, Meath, Kildare, and Wexford – all areas of high population growth. Relative to current capacity, Meath, Clare, Cavan, Monaghan, and Leitrim have the highest increases, with Meath and Clare requiring twice the current GPs and doubling the current capacity, respectively. Specifically, East Clare, Southwest Meath, and Clonee require the highest number of

workforce support under universal access. Although Limerick and Galway show some of the lowest number of WTE GPs required, East Limerick and East Galway have some of the highest numbers of WTE GPs required in the country, relative to current capacity. This may be to compensate for the relatively low number of WTE GPs per 1000 persons in these CHNs as a starting point.

Table 6 Workforce requirements by county to achieve BMA-indexed consultations

County	Universal access with 25 consultations as a yardstick	
	Headcount GPs Required	Headcount GPs Required w/ WTE
Carlow	5	16
Cavan	13	26
Clare	21	41
Cork	-18	82
Donegal	13	42
Dublin	16	263
Galway	-24	23
Kerry	-3	24
Kildare	28	68
Kilkenny	14	31
Laois	7	22
Leitrim	5	11
Limerick	-13	23
Longford	5	13
Louth	6	30
Mayo	19	43
Meath	42	76
Monaghan	10	20
Offaly	8	21
Roscommon	6	17
Sligo	-1	11
Tipperary	14	42
Waterford	-7	15
Westmeath	1	18
Wexford	22	50
Wicklow	6	32
National	195	1060

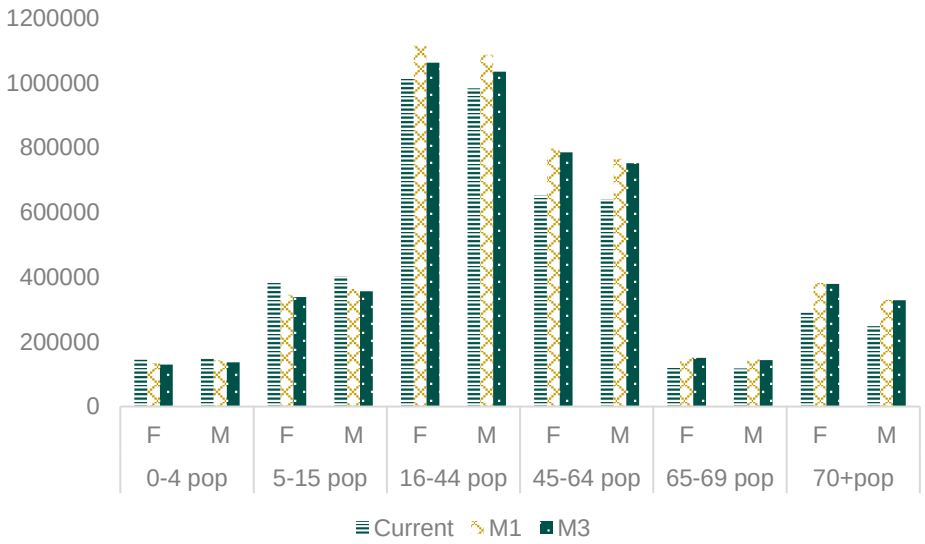
5. Future Supply and Demand

Note: Future general practice requirements are contained in the 2025 Capacity Review (ESRI).

5.1 GP workforce projections. There is significant momentum to increasing GP training places to record-high numbers. At the same time, the International Medical Graduates Rural GP programme began in 2023 to recruit and support IMGs in areas where older GPs are working for longer to sustain service usage. While the number of GPs is expected to increase, there will also be growing demographic pressures and expected policy shifts towards universal access. In this section, we will highlight the different factors that are evident from this work to consider when forecasting GP workforce requirements.

5.1.1. Population size and characteristics. Changes to population numbers as well as its distribution will impact service usage. As evident from visit rates in Chapter 2, some segments of the population avail of GP services more frequently than others. Figure 5.1 illustrates changes to the demographic groups from the current population using CSO M1 and M3 projections: M1 is high net migration and M3 is low net migration. For both M1 and M3, future population projections indicate a decrease in individuals aged under 16. This suggests that pressure from antenatal care is likely to be less significant for GPs. However, this is counteracted by population growth across all the other cohorts.

Figure 5.1 Population changes from current estimates to M1 and M3 between 2022 and 2030



The largest difference between the two migration scenarios occurs in the 16-44 population cohort: growth 15-44 group doubles between M1 and M3. Concerning implications for GP service usage, we observe an increase in both GP and GPNM visit rates for women in this cohort. Men aged 15-44, on the other hand, have some of the lowest GP and GPNM visit rates in the population. This is supported by policy shifts around women's increasing use of general practice for contraceptive and screening access as well as evidence of young men engaging less with general practice (Jeffries and Grogan, 2012; Galdas et al., 2005). The largest change, by cohort, for both migration scenarios occurs for individuals aged 70+. In 2030, this group is expected to grow by 30-33% from current estimates, reflecting an ageing population. The post-pandemic service usage for this cohort has not yet recovered. So, either the model of care has shifted to fewer and longer visits or the legacy of the pandemic will cause a more permanent drop in this cohort's service usage. It may be that the model of care has shifted, especially under the Chronic Disease Management Programme such that GP visits are more predictable and planned. However, if visit rates revert to pre-pandemic levels, they could almost double the frequency of current service usage for this cohort.

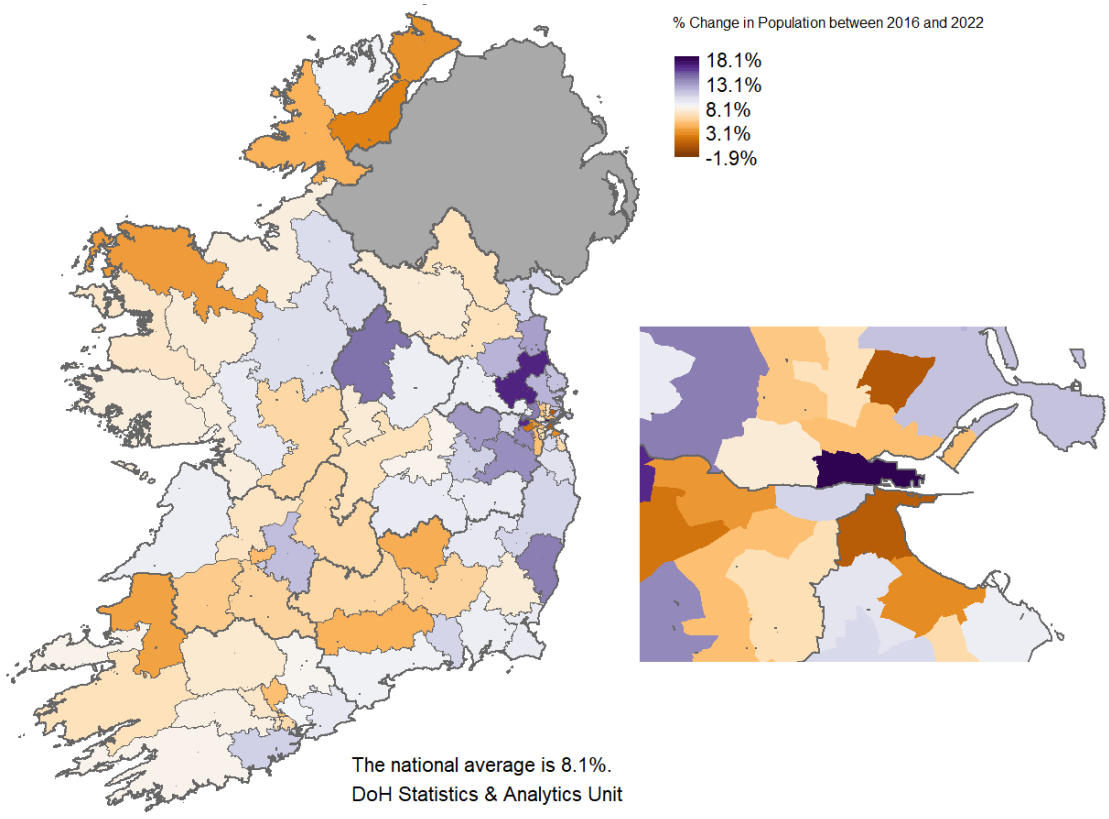
Irrespective of future migration, people aged 70+ experience the largest population increase in 2030. If their general practice service usage recovers to pre-pandemic levels, it would almost double from current estimates.

5.1.2. Population growth and changes regionally. On a regional level, areas that have experienced population growth since 2016 are highlighted in Figure 5.2. Commuter towns, including Cavan, Meath, Kildare, Louth, and Wicklow, as well as parts of Dublin and north of the Midlands, around Longford and Westmeath, are where populations have grown above the national average. As outlined in Section 4, these regions have some of the highest workforce requirements stemming from population growth, particularly due to the rise of young families requiring more frequent GP visits. On the other side, when it comes to ageing population, all other regions, especially the westernmost areas of Donegal, Mayo, Galway, Clare, Kerry, and Cork as well as all of Tipperary, are spotlighted. With the exception of Tipperary, areas with increasing population growth tend to be more constrained in terms of capacity than those experiencing ageing populations – they are much more likely to have fewer workforce estimates compared to their population. However, as shown in Section 4, people from outside of these regions avail of GP services in neighbouring areas with slightly higher capacity. This is also the case with areas experiencing an ageing population: though they are not capacity-constrained themselves but their neighbouring areas are, and people from those areas may be visiting GPs in these relatively better-served areas. Also, in areas with populations ageing, there tends to be a predominance of single-GP practices and individual GPs holding multiple panels in multiple locations. Both these factors combined can present significant risks to the continuity of care.

Future population growth may arise in regions other than the ones currently experiencing such increases. While individual considerations may influence the regional distribution of population growth, from a health-system perspective, it can be monitored regularly. By focusing on capacity-constrained areas, incoming workforce could be directed to areas most in need of sustained service delivery. Meanwhile, the regional spread of ageing populations may be more predictable and stable making it easier to identify those areas. It is important not to overlook them - not only is the proportion of ageing population expected to increase, but these regions may also absorb service usage from neighbouring areas. In addition to directing incoming workforce to these areas, it is equally important to restructure the service delivery to ensure that GPs are organised in multi-GP practices to provide cover and maintain high-quality service provision.

While areas currently experiencing population growth are more likely to experience capacity constraints, areas with ageing populations are likely to have an older workforce and higher risks to continuity of care.

Figure 5.2 CHN map showing population change between 2016 and 2022 on a CHN level



5.1.3. Public service provision. Public service provision is a factor of workforce numbers and contract uptake. Analysis of GMS, Under-6, and CDM contract uptake reveals reasonably good uptake, particularly in areas with population growth for Under-6 and those with ageing populations for CDM. Central Meath, Kildare and North Kerry are exceptions. When monitoring population growth and ageing populations to coordinate workforce requirements, it is important to monitor and ensure good public contract uptake aligns with the underlying demographic needs of the area. In regions likely to have a predominance of young families in the future, it should be ensured that local GPs have good uptake of the Under-6 contract. Similarly, in areas with a larger ageing population, CDM contract uptake must be monitored.

5.1.4. Changes in eligibility and uptake. Changes to eligibility policy can increase service usage but the extent may vary. If universal access to GP care is approached gradually with eligibility thresholds, varying levels of uptake could affect number of cardholders and subsequently, service usage. Uptake with age-based eligibility is higher relative to income-based eligibility due to various reasons, particularly the complexity of determining the latter. Concurrently, government intervention to improve uptake can, also, have consequences for service usage without any shifts in policy. Those currently eligible but without cards can increase total GP visits as cardholders tend to visit their GP more frequently than non-cardholders (Connelly et al., 2022). It is easier to predict the visiting behaviour of this cohort because some people with similar characteristics are already cardholders, and we can observe their GP visiting patterns. However, under both total universal access or some eligibility threshold, the visiting behaviour of those not currently eligible can either remain the same as existing cardholders or increase by 30%. This induced demand assumes that these newer cardholders are likely to be healthier and therefore, would not visit the GP as frequently. The methodological underpinning of the 30% increase is explained earlier in Section 4.3.

Changes to eligibility policy can impact service usage but it is expected that the cohort of newly eligible persons are likely to frequent general practice at a lower rate. These persons are likely to be healthier than current cardholders.

5.1.5. Changes in scope of GPNM. From our illustration on visit rates in Section 2, the growing importance of GPNM to general practice service usage is evident. While we have no sight of the different clinical tasks GPNMs engage with, we know that they make up approximately 33% of all general practice service usage. As mentioned previously, GPNM and their employers are the sole determinants of a GPNM's role so there can be considerable variance across the scope of all GPNM roles. Not only does this inhibit workforce development, but it can impede workforce mobility. For example, if a GPNM's previous role involved care coordination and management but the current role does not, there is potential for GPs to miss opportunities to delegate tasks and free up their workload by delegating tasks to GPNM. Both international and national evidence suggests that there is significant scope for GPNM to treat low to medium complexity care, especially in aspects of chronic disease management and women's health, with

Focusing on women aged 17-45 and their contraceptive care, expansion and streamlining of GPNM roles can free up 83 to 100 GPs worth of clinical work.

little to no difference between GP and GPNM care outcomes (Voogdt-Pruis et al., 2010, Laurant et al., 2018, Lovink et al, 2018; McCarthy et al., 2012; McCarthy, Cornally, & Courtney, 2011). Restricted by information sources, we focus on women aged 17-45 and their contraceptive care. According to data from Well Woman, even though GPNM are more likely to provide information about Long-Acting Reversible Contraception (LARC), GPs are consulted approximately 5.3 times more than GPNM when it comes to individual contraception use. Assuming that contraception information is exclusively sought in only one consultation and reducing estimates by 5%, approximately 605,000 consultations could be transferred to GPNM. That's approximately 83 to 100 GPs' worth of clinical caseload. Streamlining and broadening the scope of GPNM role can help GPs focus on high-complexity care and potentially allow for longer individual GP consultations as well as freeing up GP time for non-clinical work, such as further education.

6. Using data to plan for general practice

In this section

The supply of WTE GPs and GPNMs relative to the population on a CHN level. Contract uptake, public patient panels, GP age, and capacity risks are discussed.

6.1 Using current data streams for ongoing monitoring purposes. The data landscape on general practice is fractured. For the analysis carried out here, the available data has strengths and flaws. Currently, no available data is suitable for ongoing monitoring purposes of total general practice capacity. Information on the available data is in the table below.

Table 7 Available data sources on GPs

	Strengths	Flaws
PCRS (HSE contracts)	• Individual, geographically identified GPs • Proxy information available to understand some practice and panel characteristics • Delineates contract-type	• Does not capture private and locum GPs • Captures some defunct, duplicate and administrative accounts • Delineation by type of clinical practice (e.g. general practice v specialist service) is manual • Possible that accounts linked to single individuals may represent de-facto practice accounts for more than one staff member • Working hours not available
ICGP	• High coverage anticipated owing to links with training • Information on graduate pipeline	Includes only self-selected members
Revenue	Captures active GPs	• Significant time lag • Employment status is self-reported • No individual or geographic identification available
Irish Medical Council	• Likely to capture hard-to-identify cohorts such as short-term locums • Some geographic and working hour data available	• First-time registrants not included • Includes clinically inactive • Does not include type of practice (e.g. standard general practice, specialised services, locums etc)

6.2 Validating "PCRS + 500". To facilitate service planning, policy-making, stakeholder engagement and international and time-series comparison, it would be useful to have a consensus on how to estimate the number of GPs at any given timepoint, without engaging in the extensive data work carried out here. In the current context, there is no single source of reliable data on GP numbers. While work continues to establish a reliable, complete data source on GPs, an approach to estimation is necessary. One estimation approach used by the Department of Health and the HSE is "PCRS + 500", which would produce an estimate of 3,598 in mid-2022. This is 336 (9%) more standard General Practitioners than the 3,262 estimated here. There are clear reasons for this, as PCRS

contains accounts for specialised services and administrative accounts where locums may operate or GPs working across multiple panels. Thus, for service planning for "standard practice", a more suitable metric is "PCRS + 150 to 200". However, the standard approach of "+500" may be more accurate when estimating all general practitioners, including those working in specialist services and locums. In the absence of information about locums, however, this cannot be validated. As the working practices of GPs change, it is probably advisable to adjust for a WTE estimate. The medical council and ICGP both collect annual data on working hours, which could be employed to adjust the "PCRS+" model. Here, the restricted model used above (0.84 in 2022) should be used for standard practice GPs and the unrestricted model (0.80 in 2022) for all GPs, as the unrestricted model includes GPs with low working hours who are less likely to be in standard practice. See suggested formulas below. These should be adjusted wherever possible to reflect real-world data.

"PCRS + 500" is currently a fairly reasonable way to estimate GP numbers.

Table 8 Formulas for calculating GP headcount and WTE

Standard practice, clinically active GPs		All clinically active GPs	
Headcount	**WTE**	**Headcount**	**WTE**
PCRS + 164	**(PCRS+160)WTE^{R}**	**PCRS + 500**	**(PCRS+500)WTE%**
2022 point-in-time estimate			
3,262 3,098 + 164	**2,740** (3,098 + 164)0.84	**3,598** (3,098 + 500)	**2,878** (3,098 + 500)0.80

PCRS is the output number of observations from the PCRS database at a given time. WTE is the WTE multiplier detailed in the previous table, which can be calculated annually based on Medical Council data for standard practice(^{R}) and all GPs.

6.3 Improving understanding of GP capacity. Suggestions for improving the data landscape on GPs: PCRS. The most detailed data available to the Department and HSE is through PCRS, collected as a function of administrating contracts with individual GPs, such as the General Medical Services (GMS) contract. As such, any changes to the data collection may be dependent on changes to the contract. Without any changes to the contract, it may be possible to introduce routine flagging of some GP characteristics. This could build on various flagging exercises carried out here with no additional data collection required from those currently in the database, and together with routine quality checks, would facilitate a more accurate assessment of the database. This includes:

- Ensuring the exclusion of GPs who are no longer active;

- Flagging GPs who may appear two or more times in the database for example, those holding two contracts in two small, rural practices or those temporarily occupying another GP's role during a transition;

- Flagging the type of clinical practice delineating between "standard" general practice and specialist services;

- Introducing uniformity in Eircodes or geographic coordinates for the practices to allow for a continuous geographic assessment of capacity;

- Introducing a practice ID (or even a location ID based on Eircode as in some cases, more than one GP practice can operate from the same location).

Combined, these checks would allow a more accurate view, on a continuous basis, of the number of GPs with HSE contracts available for "standard" general practice, regionally. More complex changes to the database may require changes to the contract but could in theory include:

Updates to PCRS, ranging from simple to complex, could improve our understanding of GP numbers.

- Contract management and thus, database management on a practice-basis. This could:
    - Capture all GPs in a practice who engage with public work, even temporarily (for example, covering leave).
    - Capture information on working hours of GPs to estimate WTE and limits on practice panel size.
    - Capture information on the age of GPs for monitoring and planning for potential retirements.
    - Capture more granular information on other general practice staff, particularly practice nurses and midwives, administrators, and managers, including headcount and working hours, to better understand total general practice capacity and inform policy development and stakeholder engagement in this area.

- Introduce patient-level data collection on consultations across nurse and GP visits, which would facilitate:
    - Monitoring of service use by population characteristics and geography

Conclusion

This paper outlines the general practice workforce in Ireland, to the extent data allows. The poor quality of the data landscape cannot be over-stated – all the data underpinning this analysis is inherently uncertain and subject to a margin of error. This analysis is motivated in part by the Strategic Review of General Practice Services being undertaken by the Department of Health. In the terms of reference for the review, key areas are highlighted with respect to evidence accrual. Thus, the analysis presented in this report is summarised through addressing these key areas.

1) GP TRAINING

a. Workforce supply with respect to demographic shifts

- There are 3,262 clinically active GPs providing standard services in Ireland in 1,451 general practice settings, translating into **2,740 whole-time equivalent GPs**. While this number is inherently uncertain and from a single point in time, it provides a baseline for considering the supply of services.

- There is approximately one GP for 1,578 persons and **one WTE GP for 1,973 people** in Ireland. This reflects 0.63 GPs and 0.51 WTE GPs for every 1,000 people in Ireland. For context, England in 2021 had 0.81 GPs and 0.64 WTE GPs for every 1,000 people. However, international comparisons of workforce supply are likely prone to error due to differences in the working practices of GPs, their registration, etc.

- Consultation-load is the best available measure to consider the true demand on GPs. On average, WTE GPs have 29 consultations per day.

- 13% of GPs work at least 48 hours per week. This could be an unsustainable means of augmenting the workforce. **Overtime increases the supply of GP services in terms of hours by between 4% and 7%**. Planning for the future GP workforce should consider replacing this overtime with additional workforce to avoid burn-out.

- Internationally, the composition of general practice is shifting away from single GP practices to multi-GP practices, driven by a strong health, economic, and health service management rationale. This restructuring is evident in Ireland **where just over 1 in 5 GPs remain in single-GP practices** and a further 1 in 5 GPs operate from dual-GP practices. **In areas where single GP practices are common and the population is ageing**, there is some indication that the broader workforce of the practice – through **general practice nurses**

and midwives (GPNM) – could allow for some protection against short-term demand shocks while restructuring of practice composition takes place.

- In terms of demographic pressures**, low GP numbers are exacerbated by high population growth** in areas such as Meath, Leitrim, Kildare, and Wexford. In East Clare, that has 44% lower than national average of GPs per capita, older contracts, and potentially GPs, are a concern with average contract age being 65% higher than national average. With lower GP capacity in East Clare and other areas, like Longford and Westmeath, existing older GPs may be deferring retirement to maintain service provision.

- **For both private and public service provision, younger GPs may be selecting into areas neighbouring those with capacity constraints.** This is the case when considering both clinical workload and succession planning. For example, West Clare has both higher than national average GPs per capita and lower than national average contract age. Granular analysis allows us to identify smaller areas with capacity constraints that may be overshadowed in more aggregated averages.

- **Local supply of services in major urban areas should be interpreted with caution due to evidence of high mobility**. For example, in one Dublin postcode the total number of patients on public panels exceeds the entire population of the area – card holders in the area likely actually make up 35% to 45% of the population.

- In **large urban areas, high mobility in accessing care means GP preference for location in one area over another may not overly impede capacity.** However, evidence indicates that some people in Ireland report distance or travel constraints in accessing care. These constraints may be exacerbated for older people.

- **Contracts that target demographic groups are not always adopted in line with demographic expectations**. In some areas, contract uptake is highly correlated with the age profile of the local population (for example, high levels of under-6 contract uptake is observed in areas with a large child population). However, **in some cases contract uptake is low relative to the target population, indicating other factors driving the market and access to healthcare.** Local engagement may be needed to determine the reasons for the relatively slow response to contracts in areas such as where demographic pressures are likely arising.

- The **market is least responsive to demand shocks in two types of area: large urban areas and those with a high proportion of young children**. **This is a rational response to market conditions**.

- In **areas with high concentrations of small children, the demand shock is likely temporary**. In many areas GP and GPNM supply is increasing in response to population growth, but often not linearly. However, increases in response to ageing populations are relatively consistent. This is rational given areas with ageing populations will expect a consistent growth, or at least maintenance, of demand. However, where a local population has a rapid, concentrated increase in young children, the demand shock is likely temporary – demand drivers in pre-school children and pre- and post-natal care will decline as these populations age over the short-to-medium-term. In these areas, temporary approaches in responding to workforce constraints may be appropriate.

- **Demand for GP services has changed significantly** since the start of the COVID-19 pandemic. **While average consultation numbers are increasing, the distribution of consultations has shifted – demand among older persons has remained relatively dampened while demand among younger women has relatively increased**.

- **Considering the local supply of WTE GPs, and the frequency and duration of consultations of their panels and local private population based on age, gender and card-status,** we propose a model for complexity-adjusted consultation rates. **Population growth and low GP numbers are central to capacity constraints**. However, model specification is very important – without these demographic indicators, many of the flagged areas would be different. Refining data inputs could significantly improve the model with implications for real-time service delivery.

b. The retention of graduates across their careers

- The **age distribution in the GP workforce is normal relative to the national workforce and the age at which GPs enter the workforce**. As such, the current age distribution of the GP workforce alone is not a cause for concern in terms of workforce supply. However, it should be continuously monitored and substitution issues may still arise in some areas due to GP preferences.

- Intake to the GP training scheme has increased by 86% since 2015. Accounting for attrition of graduates (9% in the first five years) and the possible higher productivity of older GPs, the **replacement rate of graduates to retiring GPs between 2023 and 2027 is estimated between 1.5 and 3.1**.

- Accounting for attrition of graduates and the possible higher productivity of older GPs, **by 2030, around 2.2 GP national graduates will have on-boarded for each GP who becomes inactive**. This workforce will be available to address current capacity constraints,

non-workforce WTE attrition including changing working patterns, and meet changing demographic needs.

2) GP CAPACITY

a. The GP team with a particular focus on practice nursing, administrators, and the potential for the development of other roles

- **GPs engaging with more modern modes of practice** such as large and multi-disciplinary working practices **are more likely to engage with public work. However, this could be a function of** their agreements when **offsetting capital risk with the state** (through uptake of primary care centre and HSE health centre facilities).

- We estimate that there are **2,200 General Practice Nurses and Midwives (GPNM) in Ireland, which translates to 1,664 WTE GPNM**. On average, a practice is estimated to have 1.5 GPNM. In some areas where GPs experience capacity constraints and there is an ageing population, higher GPNM numbers may be providing support.

- Focusing only on consultation numbers, and acknowledging the differences in types of consultations between GPs and GPNMs, we estimate the **GPNM workforce augments the productivity of consultations in general practices by 33%.** This workforce is a large element of general practice, yet its visibility is poor.

- There is considerable **variance in the reported scope of the GPNM role**. From a labour force perspective, this variance **could inhibit workforce development** – as individual skill sets acquired in one practice may not be transferable to another practice. As such, workforce mobility and progression could be hindered even as the workforce and its importance to general practice has continued to grow.

- Given the state's role in directly financing GPNM services through the practice support allowance in GMS and indirectly through the wide range of fees in public contracts that are highly correlated with the GPNM role, **there may be scope for the state to tie funding lines with policy objectives around the formalisation of the GPNM role** in general practice.

- There is **no available data on the totality of other members of the GP workforce**.

b. Provision in areas of challenging service delivery

- **Public contract uptake is a function of the stage of their career that a GP is in**: Established GPs have higher levels of participation and have fewer contracts when they are entering and leaving their careers.

- For public service planning, **supply issues** are likely arising in **areas with relatively large child populations and in urban centres**, where higher demand exists.

- Across the country, **many GPs hold multiple GMS panels**, perhaps as a result of offering services across multiple geographic locations in rural areas or covering for another GP who may have exited from the workforce. This is particularly the case in the west and northwest. There is no indication that GPs with multiple lists are over-burdened in terms of patient numbers, and coverage of major schemes such as the modernisation scheme and the under 6 contract is high. However, **the uptake of contracts related to the maternity and infant scheme, childhood immunisation and cancer screening is particularly low in these areas. This suggests that continuity of supply in terms of GP workforce may affect access to healthcare**.

- While **GP replacement and continuity of supply are generally good**, **vacancies persist in a few locations**. These arise **equally between rural areas and non-city urban areas**.

- Evidence suggests that the **market for general practice services responds to changing demographic needs but the process takes time. There is greater response to growing older populations rather than overall population growth** which is typically driven by younger cohorts. On a per-capita basis, the areas with the greatest constraints on GP and GPNM supply are typically younger urban and suburban areas with strong population growth. Areas, that are more rural and semi-urban, with older, slowly growing populations often have relatively good workforce supply (which may be required due to lower population density and higher average individual demand). In other areas with ageing populations, where GP supply is relatively low but contract uptake is increasing, GPNM supply is relatively high. This may indicate that the GPNM workforce can respond more quickly to demand shocks.

- Areas with increasing levels of deprivation see increased demand for healthcare, which in turn increases pressure on GPs in the area. Newer GPs seeking to establish or join a practice will, holding other factors constant, select areas of stable or rising affluence – potentially reflecting the uncertainty of entering a changing market (among other factors). However, **counteracting any other factors and preferences, many newer GPs do enter markets with clear capacity constraints**, likely as a result of good cooperation and signalling between the HSE, ICGP and GPs. The signalling of areas with increasing

capacity constraints can be improved through interoperating mechanisms such as the relatively newly deployed Social Deprivation grant and consistent monitoring of demographic and workforce shifts.

c. Maximising capacity and panel sizes

- **Public contract uptake is lower where there may be a higher willingness to pay** (and lower eligibility) in the local population. While not an issue in the absence of universal coverage, it may indicate a set of preferences that could affect significant eligibility expansion.

- There may be potential **to consider practice-based contracts** where deemed desirable for practices and its GPs so a **better understanding of actual supply is achieved while minimising the administrative burden on both practices** and PCRS.

- While there is **scant evidence of younger GPs taking on shorter patient lists** in Ireland currently (reflecting shorter working hours), a burgeoning literature indicates that this is the intention for the younger workforce. Based on GP-reported working hours intentions, we estimate a **replacement rate of 1.1 for a retiring GP**. There is also an **opportunity to improve the productivity of the workforce through incentivising and supporting complementary work in non-practice hours** such as research, mentoring and supervision, and upskilling/specialisation.

- **In some areas, the proportion of GPs with GMS contracts is low relative to the number of public patients**. This could be an administrative quirk from de facto practice contracts obscuring the true extent of GP engagement with public services, or may reflect the concentration of public work in a smaller subset of GPs in some areas, particularly those with high population growth.

d. Practice establishment and succession planning

- Evidence suggests **that inadequate succession planning for retirement may pose a risk to the stable supply of GP services in some areas**, with single GP practices making up half of the risk group.

- Some **areas with low GP supply currently face a risk of further destabilization arising from upcoming retirements** with no evident replacement in place. However, the **HSE appears to be effective in identifying and supporting panels at risk**.

e. Integration with the Enhanced Community Care Programme

- While younger GPs are marginally more likely to practice within **Primary Care Centres**, PCCs are **not a decisive incentive for the location of new GPs**. Nonetheless, Primary Care Centres are an **important capital investment for general practice** as they allow multi-disciplinary teams to work together, increase collaboration among different primary care providers, and improve coordination with secondary care.

3) OUT OF HOURS CARE

a. Accessible, high quality out of hours GP care

- The authors have **no sight on out-of-hours services**. Commentary on out-of-hours services is based on the population of WTE GPs during standard practice opening hours.

- **General practices show some responsiveness to access needs in terms of public opening hours**. 47% of 356 surveyed general practices provide public-facing access for 30 to 60 minutes outside the hours of 9am to 5.30pm on weekdays, with a further 3% offering weekend access. **Multi-GP group practices are more likely to operate outside of standard opening hours**. It may be because increased public opening hours can be distributed across staff members to ensure that improved access for patients does not lead to excessive working hours. Incentives around expanded general practice opening hours could be considered to improve continuity of care and reduce burden on spill-over services, such as out-of-hours services.

- **GPs provide extensive cover for one another to ensure continuity of access and care for their patients. With 40 hours of public facing work over a standard working year, the GP workforce would need to double to ensure continuity during periods of leave and non-standard hours**. This assumes a one-to-one cover for leave for standard practice opening hours and a five-to-one cover for out-of-hours. As such, **understanding and formalising the locum role is of great importance to the sustainability of the general practice**. **Expanding standard working hours may be feasible and sustainable in multi-GP practices, and further ensure continuity and sustainability of care provision.**

4) SUPPORT MODEL

a. Scope of universally accessible services

- **Economic pressure can incentivise GPs,** who otherwise do not show a strong interest in public activity, **to take up public contracts**. However, under the current market structure, the **same pressures could duplicate payments to providers without any matched improvements in productivity or efficiency** – this is a risk under a significant eligibility expansion where private GPs have a high level of cooperation.

- **Universal coverage would increase service usage most in regions where there are currently relatively lesser public patients.**

- Under an **assumed target of BMA-indexed number of daily consultations (25), approximately 541 GPs would be required to enter the current market**. This is in line with the number of graduates entering the workforce over the next five years, after adjusting for graduate attrition, whole-time equivalents, productivity in more experienced GPs, and upcoming retirements. Under universal access, an **additional 518 new GPs would be required** to achieve the BMA-indexed target, after accounting for whole-time equivalents. The BMA indexation is a borrowed goalpost – it is worthwhile having a discussion about recommended number of daily consultations in the Irish context. Over the medium term, if universal coverage is desired, a continuing increase in graduate numbers, incentives around increased working hours for part-time GPs, and incentives around retention of the workforce could be considered.

b. Model required to underpin provision of sustainable GP services set out in Sláintecare

- Longer term continuity of supply may be at risk if a single-practice GP suddenly leaves the market. **There are economic, health and health service management rationales for supporting the restructuring of general practice services in areas with high levels of single GP practices**.

c. Tax treatment of practices

This is not considered in this paper.

Appendix

Caveats and interpreting this analysis

This work relies on a broad range of data sources of varying quality. As such, a significant number of assumptions and adjustments are made, which should be taken into account when interpreting this analysis. In addition to the methodological descriptions throughout this paper, particularly in section one, the following are significant considerations:

GP numbers

1. There is likely bias arising from the data collection method towards GPs with particular working practices:
    a. GPs in non-standard practice, as defined in this paper, are excluded from the analysis. The scale of this exclusion is not known.
    b. GPs with public contracts and an online presence are more likely to be captured in the analysis.
    c. Data was consolidated over a number of months after the single timepoint where PCRS data was collected. Thus, GPs who moved during this period in mid-2022 may be incorrectly geo-located.
2. Working hours are not observed on an individual level
    a. Working hours are based on binned reports of working hours with the true distribution unknown
    b. Working hour information is available at a population level and is uniformly adjusted for the geographic analyses – working hours may vary across geographies and other GP or practice characteristics but this is not observed.

GPNM numbers

3. Observed GPNM figures form a subset of the total population and are adjusted to reflect known national figures
    a. Total headcount and WTE figures are adjusted uniformly, which will not reflect variance in working hours and standard practice across geographies or other characteristics
    b. The data source used includes duplicates. It cannot be determined if a name reflects multiple people, the same person working in multiple locations, or data quality issues, such as when a person was not removed from association with a practice when they changed jobs. As such, where a duplicate name arises, the sum

of observations with that name is set such that their sum is one. For example, if person A appears in two practices, this person is counted as 0.5 of a headcount GPNM in each practice.

Public and private patients

4. Public patients are observed in terms of where their GP practices, which limits our understanding of demand and supply, particularly in cities.
    a. In PCRS, the total number of persons in some age groups who are on GP panels as card holders exceeds the total number of people in that geographic area at the time of the census.
    b. As such, for sub-national geographies, a portion of the population is excluded (about 0.5%) where panel numbers are set to a maximum of the area's population.
    c. This error likely arises from inactive individuals remaining on the PCRS database for example, if someone has recently passed away or left the country, and mobility by patients in accessing healthcare.
5. Private patients are not observed, but rather inferred from population figures and public patient figures.
    a. Private patients are set as the census population that do not hold cards. This likely underestimates the private population relative to the public population owing to the potential for inactive individuals in the PCRS database. This would mean that population-level total consultation figures are over-estimated.

Consultations

6. Consultations are from patient-reported surveys in the aftermath of COVID-19.
    a. This analysis uses 2023 survey data on average GP usage for patients and GPs active in 2022. This is because GP use sharply declined during the pandemic. As such, a more recent source on visits was used to avoid using suppressed visitation figures that could be expected to rise during more standard operating periods.
    b. Reported consultation levels vary across time, with no consistent pattern for some age-gender-card groups even in the years before the pandemic. With disruption to service use patterns during the pandemic, the most recent time point is viewed as most indicative of current and future service use. However, in a different data environment, pooled reports would have been used instead.
    c. Small sample size could bias results in some cases where the age group is particularly small. Here, the reporting population across 2022 and 2023 is combined to increase the sample size. In all cases, this results in an upward adjustment on average group consultations compared to using 2023 alone.
7. Adjusted consultations require a set of assumptions.
    a. Time use is not observed across age groups. However, an average consultation duration for the Irish population is drawn from the literature and age-group-specific consultation lengths, as observed in England, are uprated using the ratio of average consultation duration for both contexts.