

Future health and social care capacity requirements: projections, challenges and policy pathways

10 December 2025

Projections of national demand and
bed capacity requirements for public
acute hospitals in Ireland, 2023–2040:
Based on the Hippocrates model

AOIFE BRICK, THEANO KAKOULIDOU AND HARRY HUMES

Projections of national demand and
bed capacity requirements for older
people's care in Ireland, 2022–2040:
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workforce requirements for general
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ESRI Hippocrates Model

Introduction to the Hippocrates model & public acute hospital projections

AOIFE BRICK

THEANO KAKOULIDOU

HARRY HUMES

Introduction and background

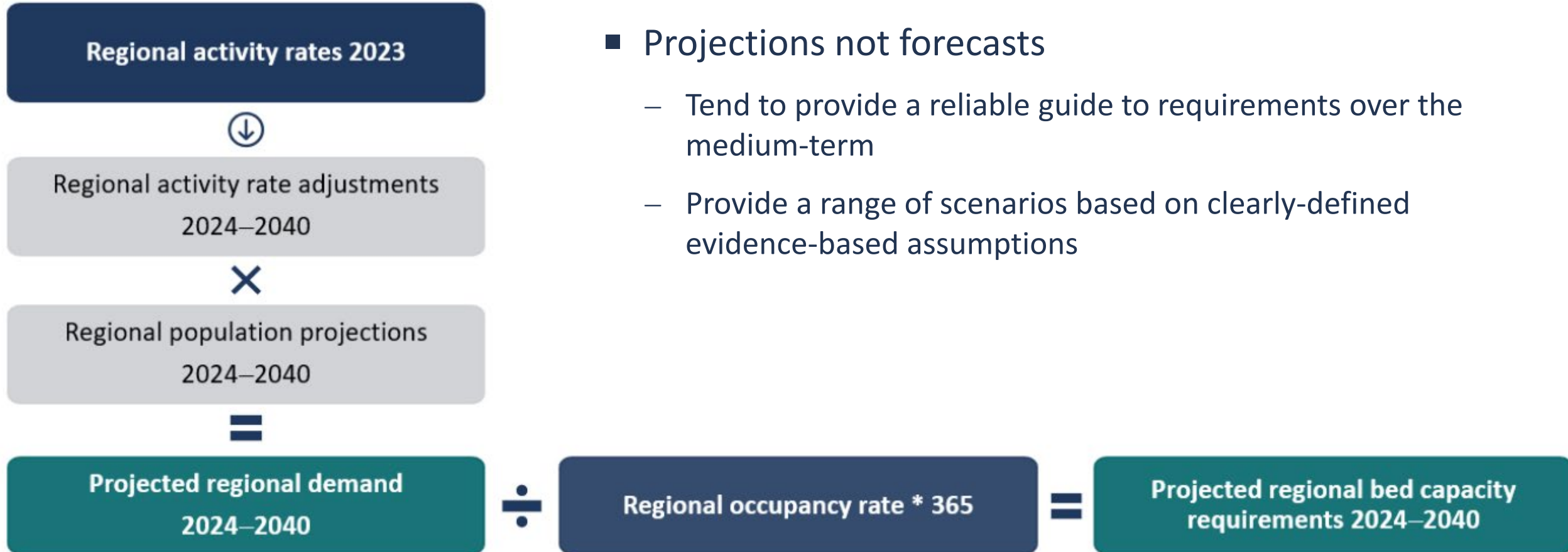


- 2014 – Department of Health/ESRI Research Programme on Healthcare reform established
- 2016 – work began on Hippocrates model
 - Objective to build a tool to project medium- to long-term demand, expenditure, bed capacity and workforce requirements for a range of health and social care services
- 2023/2024 – Department requested that the ESRI use Hippocrates to project capacity requirements (national and regional) to 2040
 - Public acute hospitals
 - Older people's care
 - General practice

What is Hippocrates?

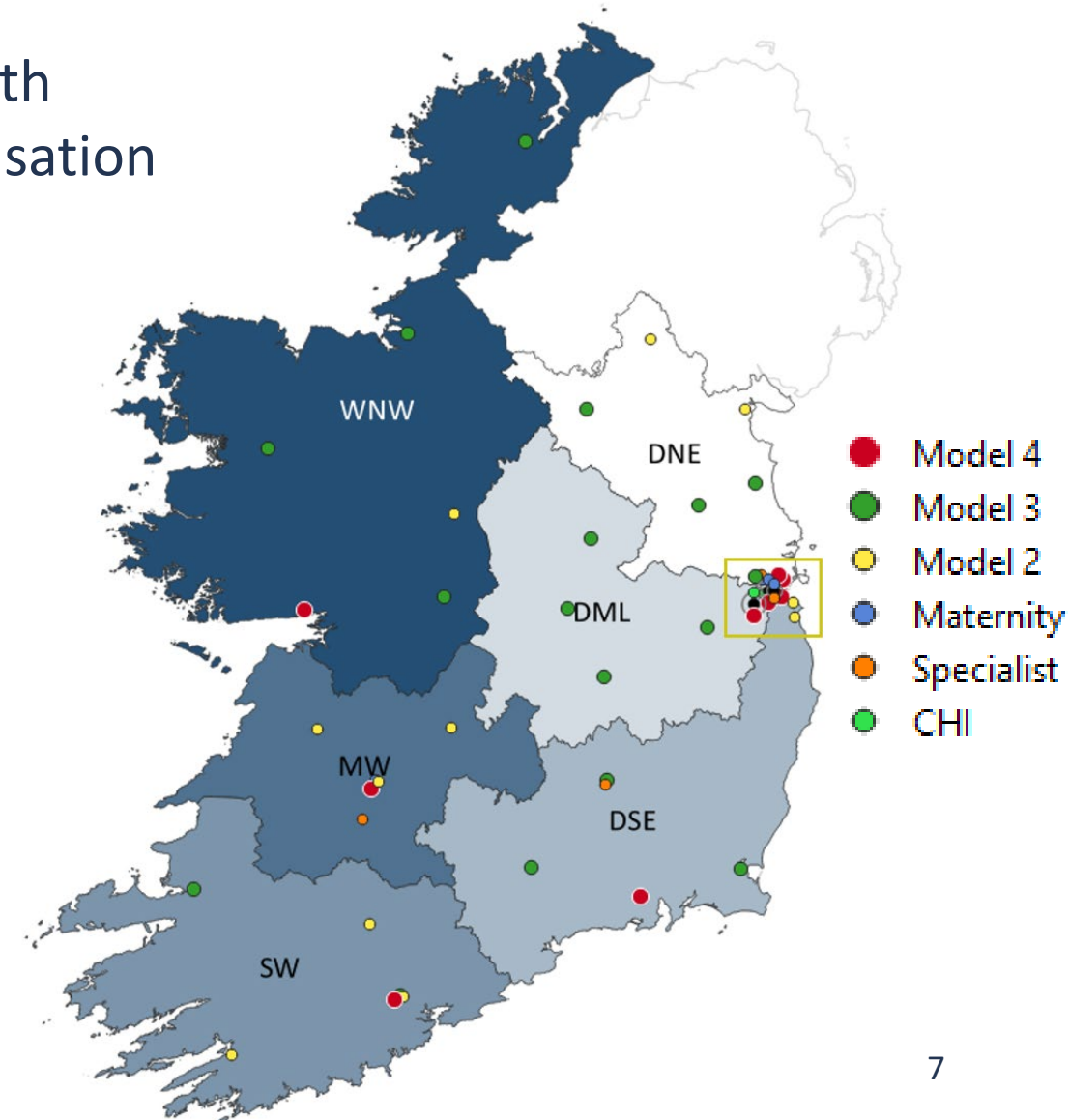
- Hippocrates is health and social care demand projection model
 - Projected demand requirements can be converted to bed capacity, workforce and expenditure requirements
- Macrosimulation 'cell-based' model:
 - Relatively moderate data requirements
 - Flexible, transparent and intuitive
 - Model alternative scenarios
- The model can:
 - identify future demand pressures
 - inform service, capacity, financial and workforce planning
 - examine impact of policy changes

Hippocrates overview



Base year and data

- 49 public acute hospitals aggregated to 6 HSE Health Regions (+CHI) based on patient region of hospitalisation
- Emergency Department attendances 2023
 - HSE BIU Acute have provided Patient Experience Time, supplemented with data on Injury Unit attendances
- Outpatient Department attendances 2023
 - HPO – specialty costing data
 - NTPF – waiting list data
- Day and in-patient admitted care 2023
 - HPO – HIPE
 - NTPF – waiting list data
 - HSE BIU Acute – provided bed occupancy rate



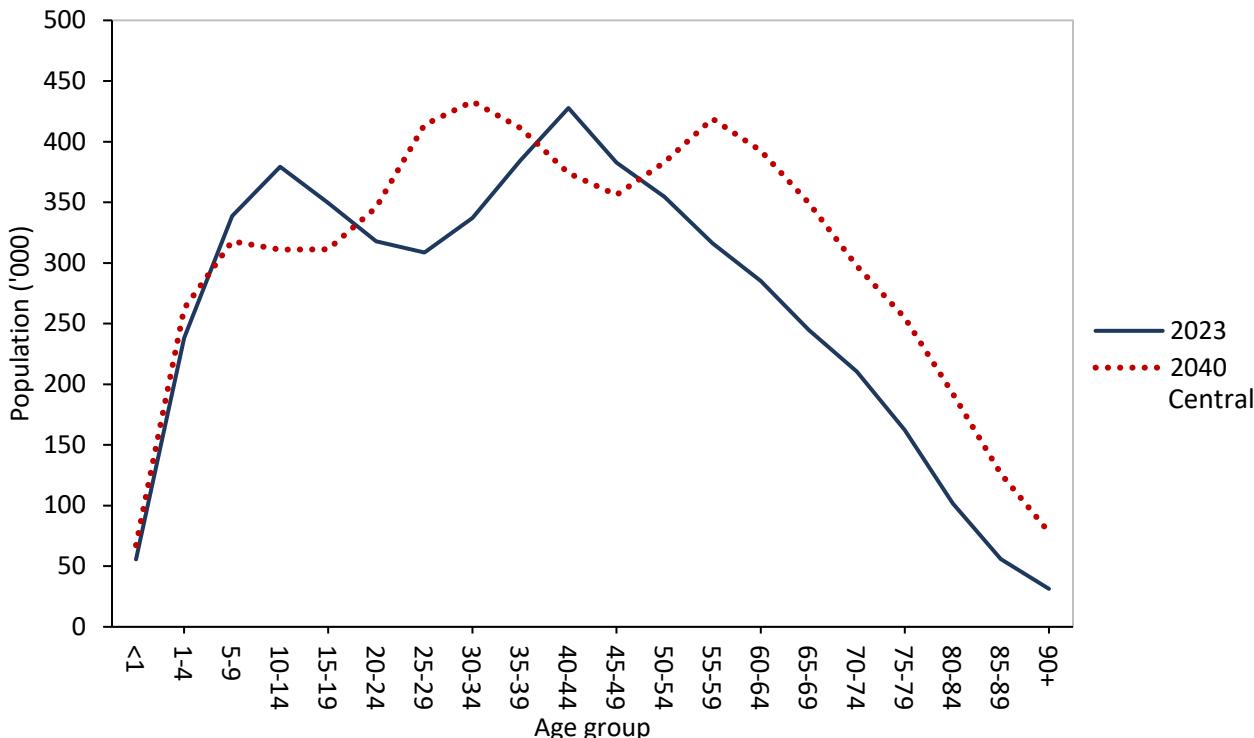
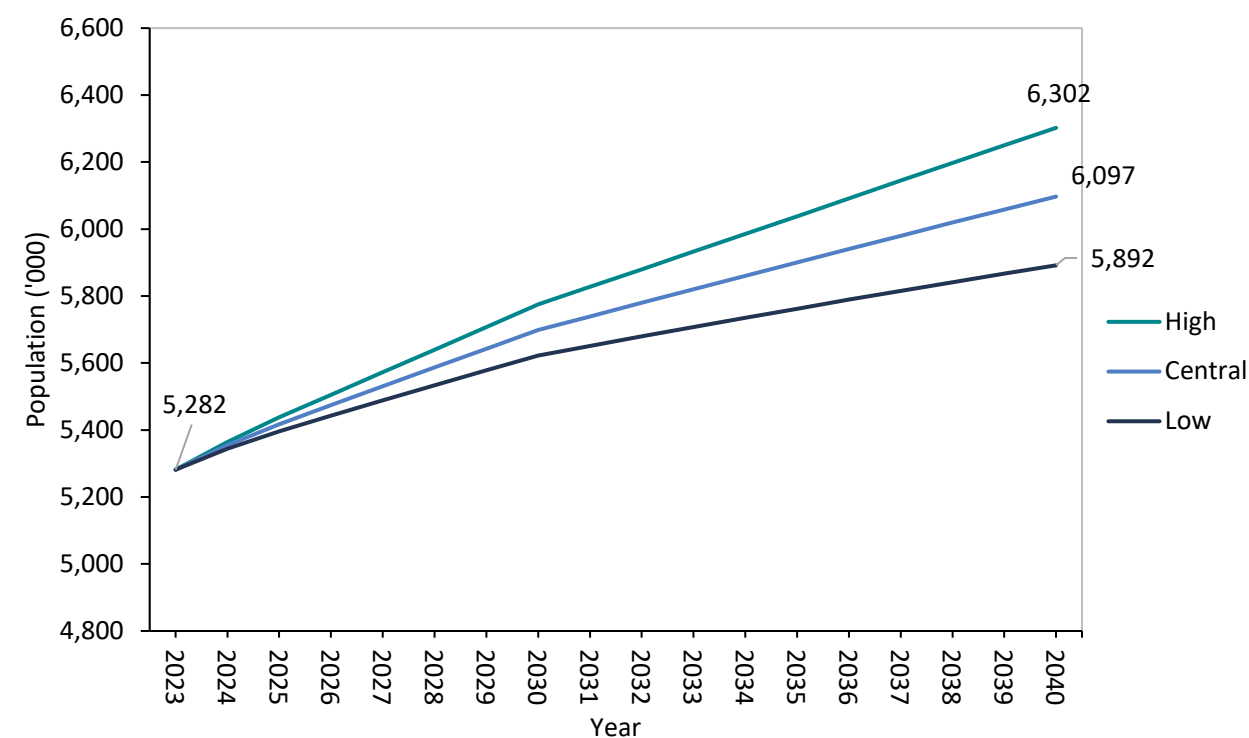
Assumptions



1) Population growth and ageing

- ESRI generated population projections – national and HSE Health Region
- Assumptions on life expectancy, migration and fertility
- Three scenarios with varying assumptions on migration

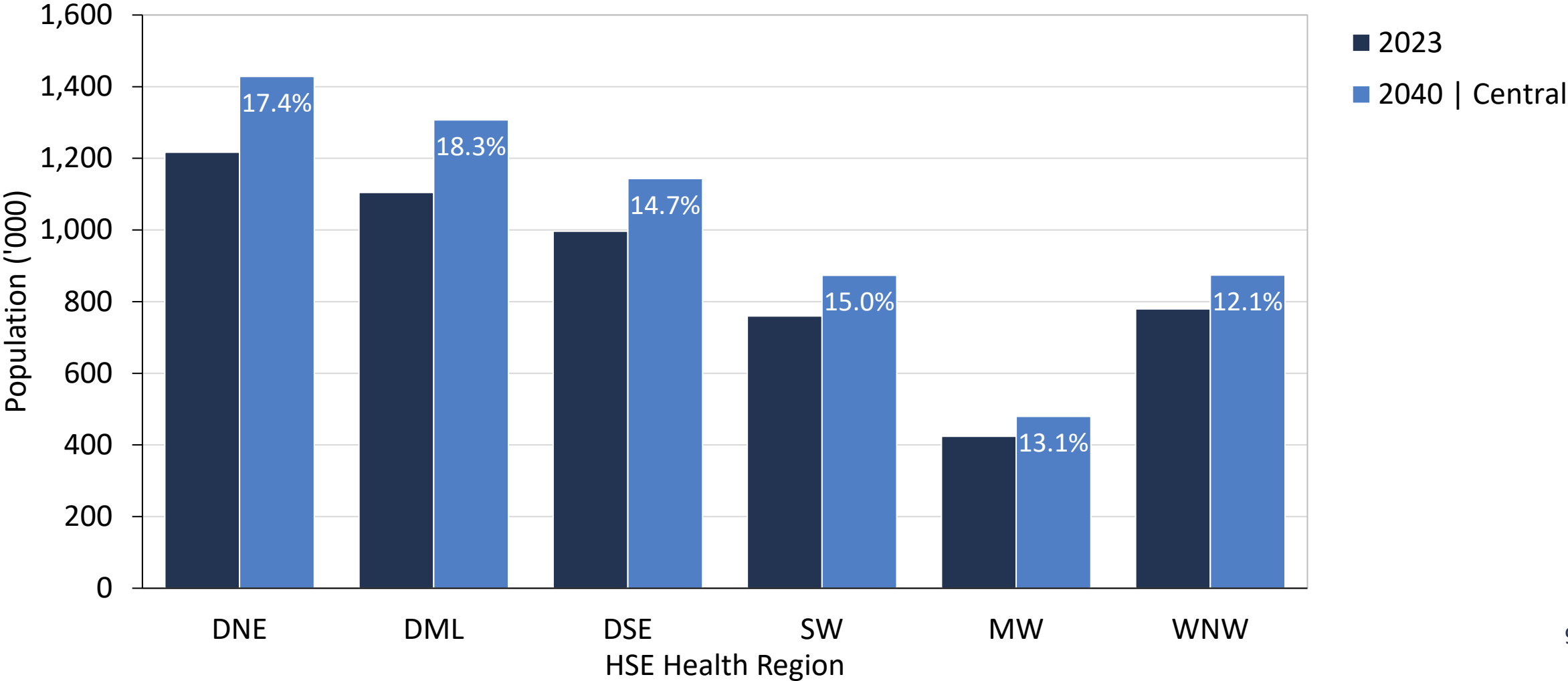
	2023	2040 - Central
<15	19.2%	15.7%
15-64	65.6%	63.0%
65+	15.3%	21.3%
85+	1.6%	3.4%



Assumptions



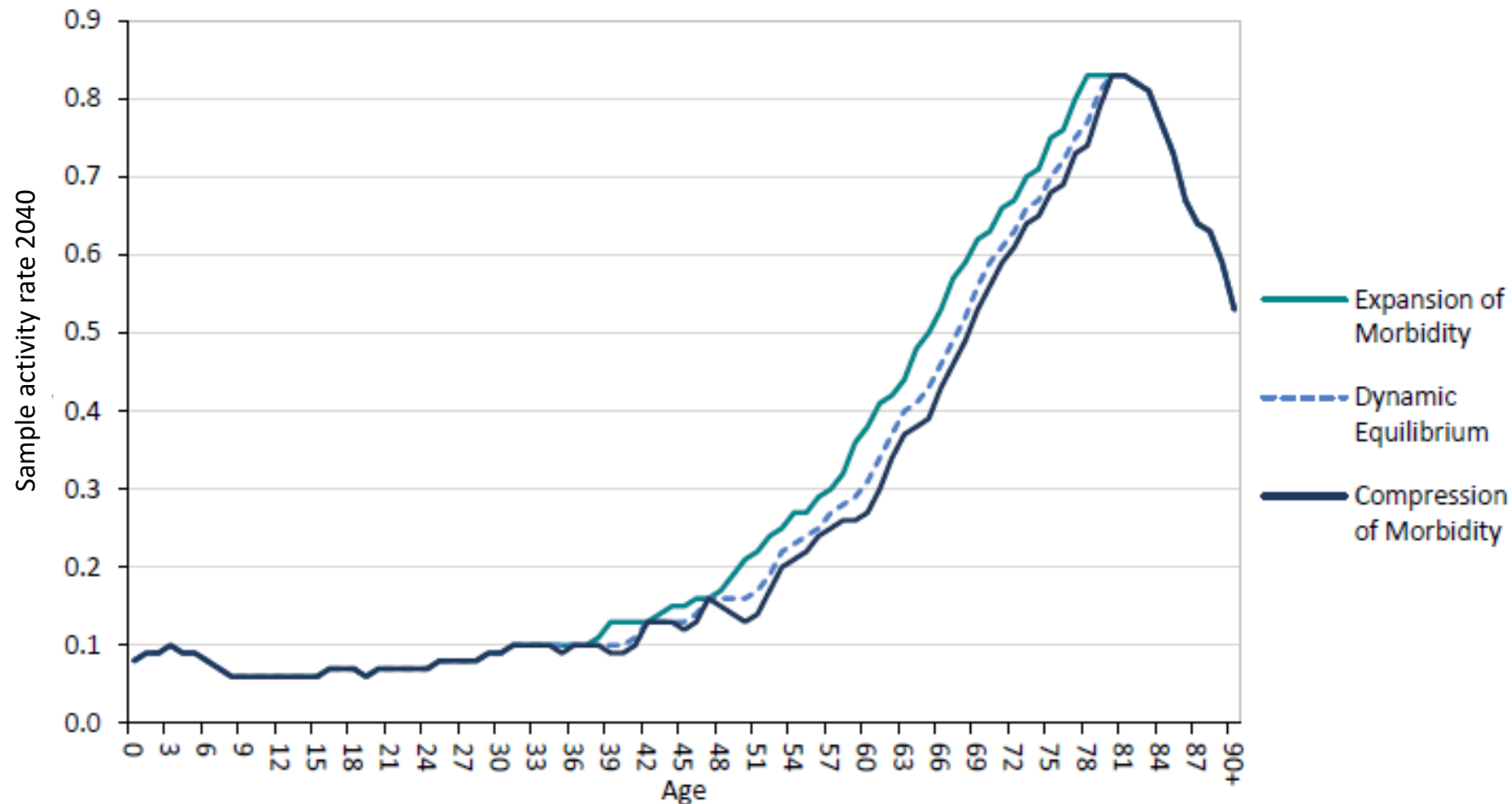
1) Population growth – Regional



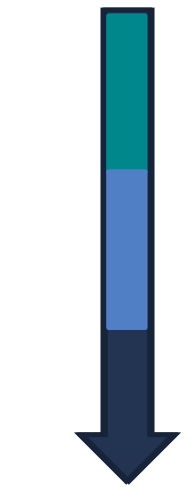
Assumptions

2) Healthy ageing

- Reflects varying hypotheses on the relationship between population ageing and healthcare use.



Pessimistic



Optimistic

Assumptions

3) Reduction in potentially avoidable emergency hospitalisation rate

- Reflects potential expansion of community care
- Modelled as a discharge and bed day rate (-25%, ~ -12%) linear reduction to 2040

4) Private out of public hospitals

- Reflects potential shift of private activity out of public hospitals
- Excludes children, emergency and maternity patients and the most complex elective patients

5) Waiting list management

- Reflects reduction in waiting lists for elective care over time
- Backlog reduced over 5 or 7 years and additional capacity to keep waiting lists under control

Assumptions

6) Increase in elective care delivered as day case

- Reflects a shift from elective in-patient to day case activity
- We assume an annual shift of ~0.2 pp of elective in-patient activity to day case (18 to 74 years), to 95%

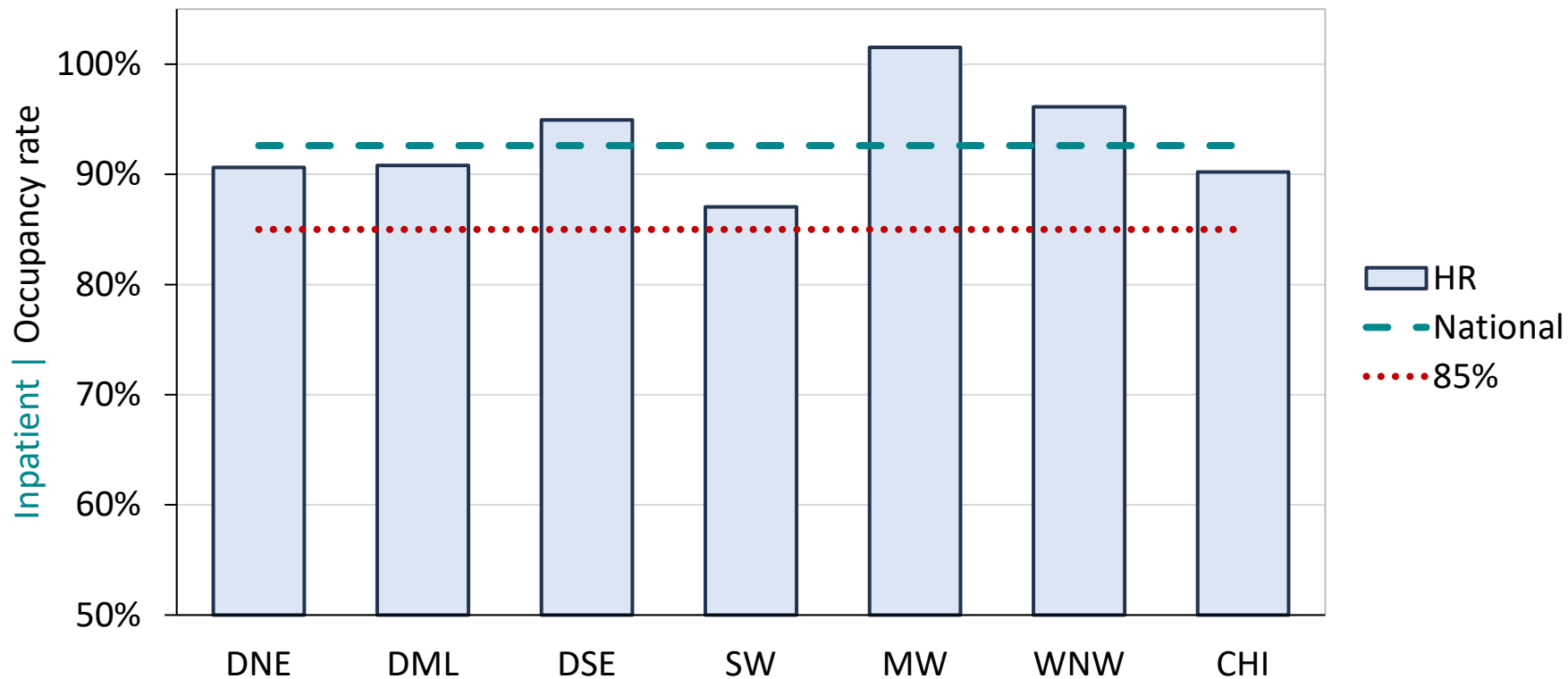
7) LOS reduction

- Reflects potential bed day savings from e.g. reduction in delayed discharges
- No single data set available – delayed discharges (HSE BIU Acute) and high outliers (HIPE data)
- We assume
 - **Elective** bed day saving converging to 5% for adults.
 - **Emergency** bed day saving converging to 5% for adults aged <75 and 10% for those 75+

Assumptions

8) Occupancy rate

- Employ the 2023 rate in our status quo scenario (day case: 126.7%, inpatient: 92.6%)
- Vary our inpatient occupancy rates by 2040 to 90% and 85% in other scenarios
- Use different starting in-patient occupancy rates (90% and 95%) for sensitivity

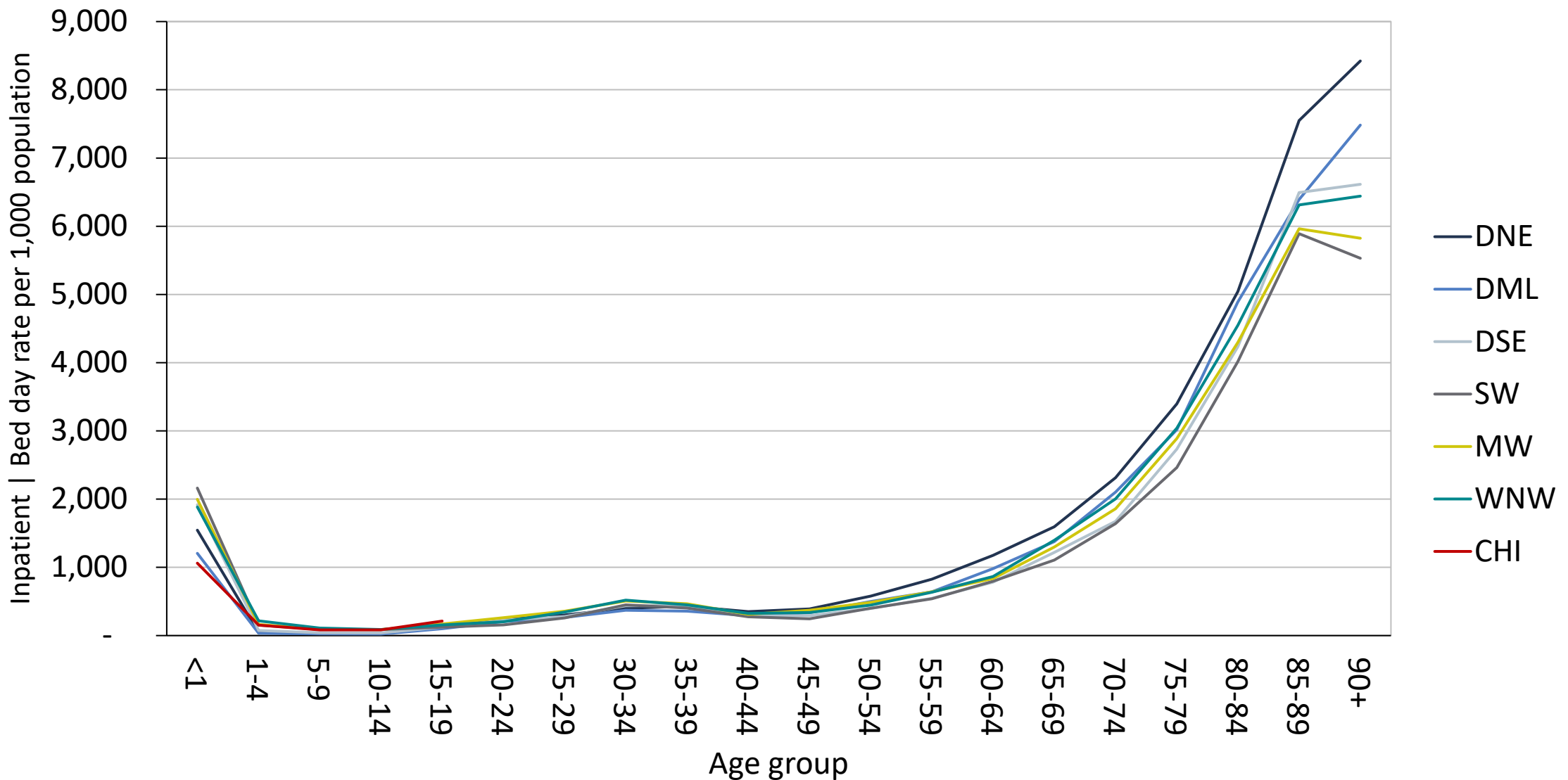


Projection scenarios



	Scenarios			
	Status quo	Low pressure	High pressure	Progress
1) Population growth and age structure	Central	Central	High	Central
2) Healthy ageing	-	Dynamic equilibrium	-	Moderate healthy ageing
3) Potentially avoidable hospitalisations	-	-	-	25% rate reduction to 2040
4) Private out of public hospitals	-	-	-	Central
5) Waiting list management	-	-	Low-clearance	High-clearance
6) Elective in-patient to day case	-	-	-	Increase by 0.2% per annum to 95%
7) Length of stay reduction	-	-	-	Yes
8) Occupancy rate by 2040	92.6% (2023 rate)	92.6% (2023 rate)	90%	85%

2023 activity profiles | Inpatient bed days



National projections

	2023 Baseline	2040		Total growth 2023-2040	Average annual growth 2023-2040*
	N ('000)	Projected additional N ('000)	Total N ('000)	%	%
ED attendances	1,641	333 - 444	1,974 - 2,085	20.3 - 27.1	1.1 - 1.4
OPD attendances	4,563	950 - 1,298	5,513 - 5,861	20.8 - 28.4	1.1 - 1.5
Day patients					
Discharges	1,205	302 - 442	1,507 - 1,647	25.1 - 36.7	1.3 - 1.9
In-patients					
Discharges	652	145 - 253	797 - 905	22.2 - 38.8	1.2 - 1.9
Bed days	3,860	1,217 - 2,133	5,077 - 5,994	31.5 - 55.3	1.6 - 2.6
	N	N	N	%	%
Beds	14,027	5,091 - 7,780	19,118 - 21,807	36.3 - 55.5	1.8 - 2.6
Day patient	2,606	653 - 955	3,259 - 3,561	25.1 - 36.7	1.3 - 1.9
In-patient	11,421	4,430 - 6,825	15,851 - 18,246	38.8 - 59.8	1.9 - 2.8

* Takes the total growth projected by Hippocrates to 2040 and averages out over the projection horizon, providing a smoothed annual growth requirements over time. This is an important distinction as year-on-year growth may fluctuate.

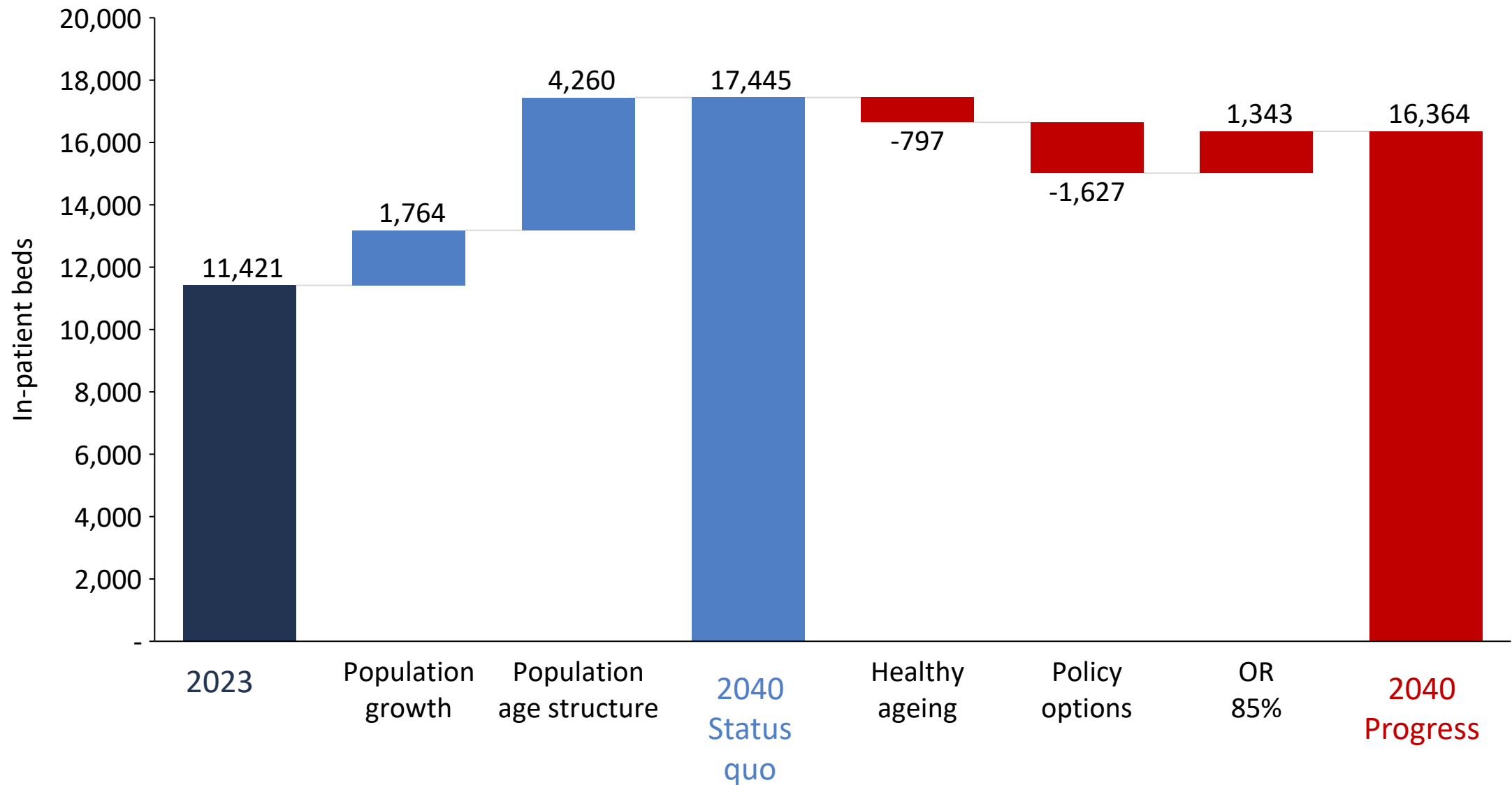
National projections



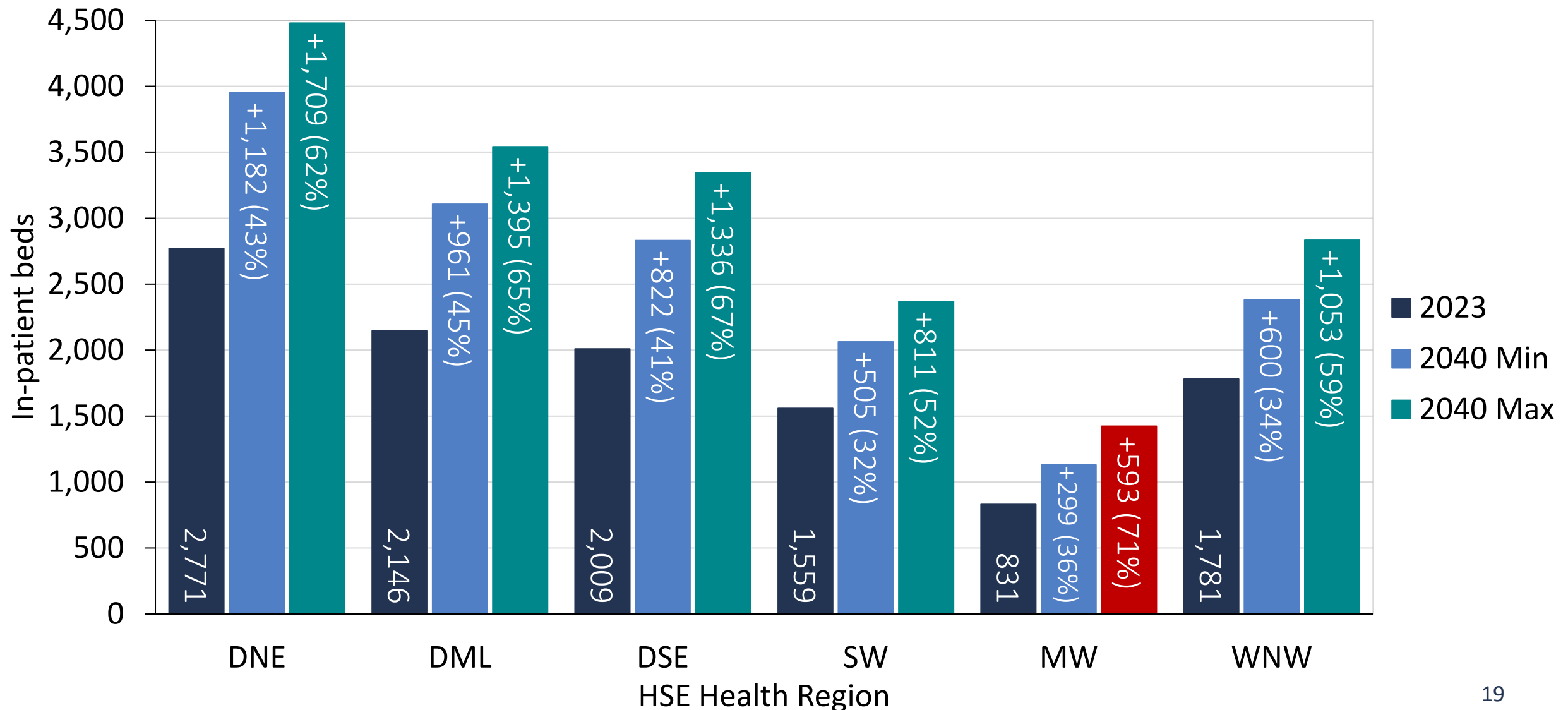
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In-patient beds – growth decomposition



Inpatient beds – regional projections



In-patient beds – sensitivity analysis

	IP beds	% difference from status quo
2023	11,421	
2040 Status quo scenario	17,445	

Effect of changing one assumption on 2040 beds:		
LOS reduction - EL IP 5% - EM IP 10%	-1,186	-6.8
Healthy ageing - moderate healthy ageing	-797	-4.6
Potentially avoidable hospitalisation rate reduced 25%	-427	-2.4
Private out of public hospitals – baseline w DRG median	-90	-0.5
Shift from elective inpatient to day case	-82	-0.5
Population – High scenario	285	1.6
Inpatient occupancy rate reduced to 85% by 2040	1,560	8.9

Fewer beds



More beds

2019 alternative metrics:		
Elective inpatient discharge rates	353	2.0
Emergency inpatient ALOS	-546	-3.1

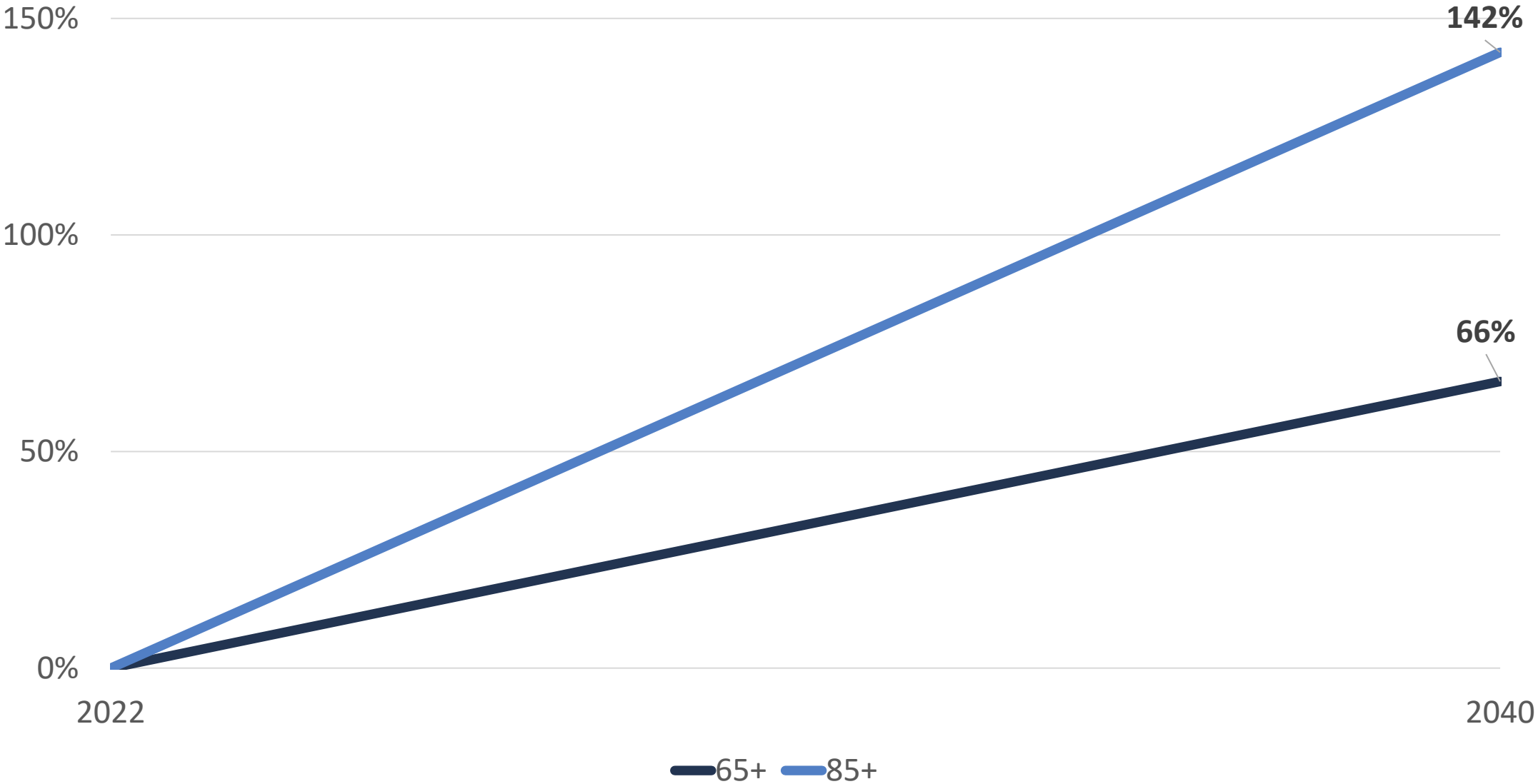
Older people's services projections

Home support hours & Residential care beds

BRENDAN WALSH

THEANO KAKOULIDOU

Older Population Projections



Services covered, base year and data

■ Home Support, 2022

- Publicly funded and privately purchased

■ Residential Care, 2022

- Publicly funded and privately purchased
- Analysis split into short stay and long stay care

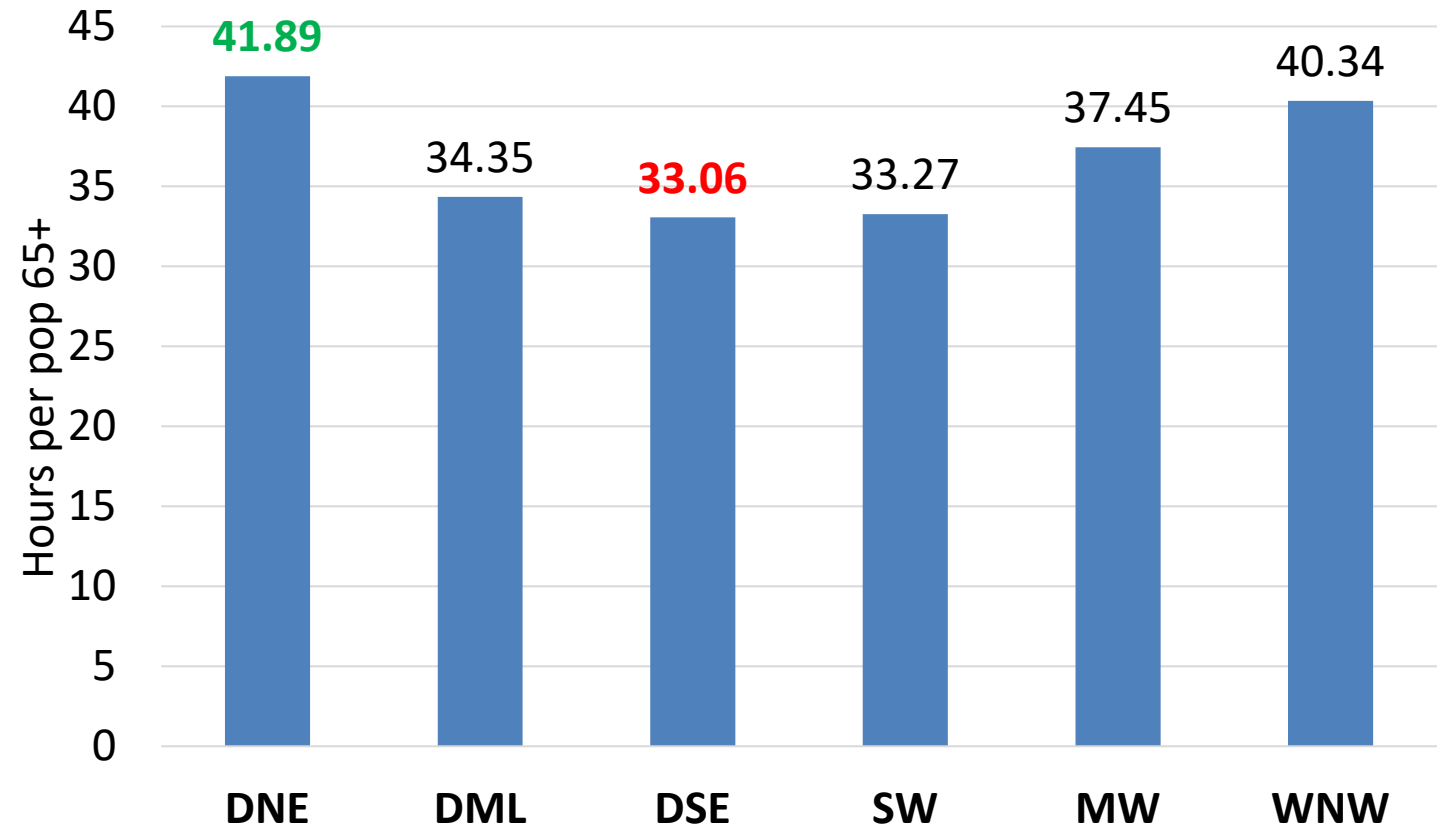
- Data on other important services (ICPOP, day centre care, respite etc) limit ability to examine currently

Home support hours – 2022

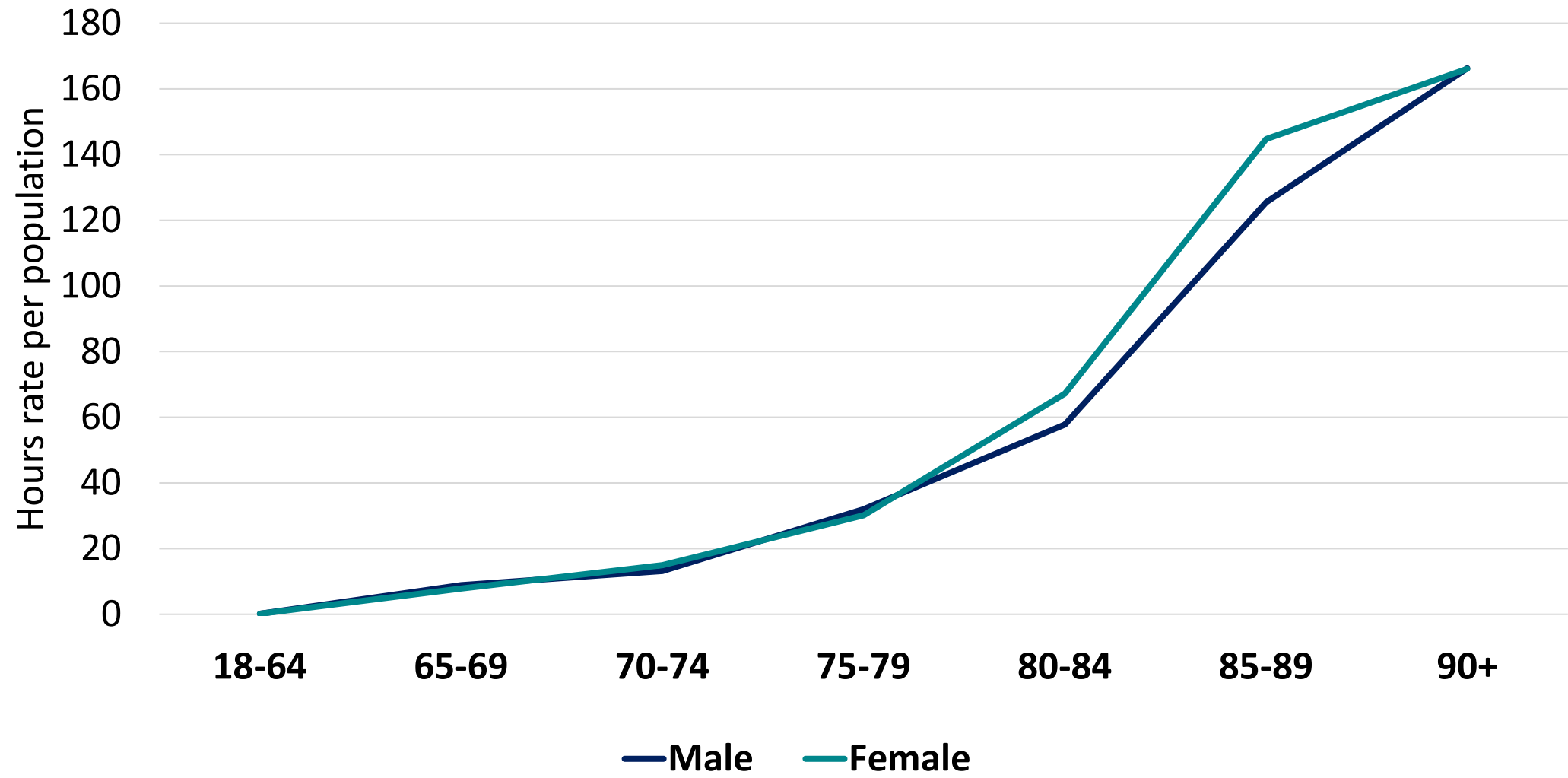
National

Category	Recipients	Hours
HSE home support scheme	56,162	20.8 m
Intensive home care packages	235	0.2m
Privately purchased	13,411	7.7m
Total	69,808	28.7m

Regional



Home support hours – 2022 age & sex distribution

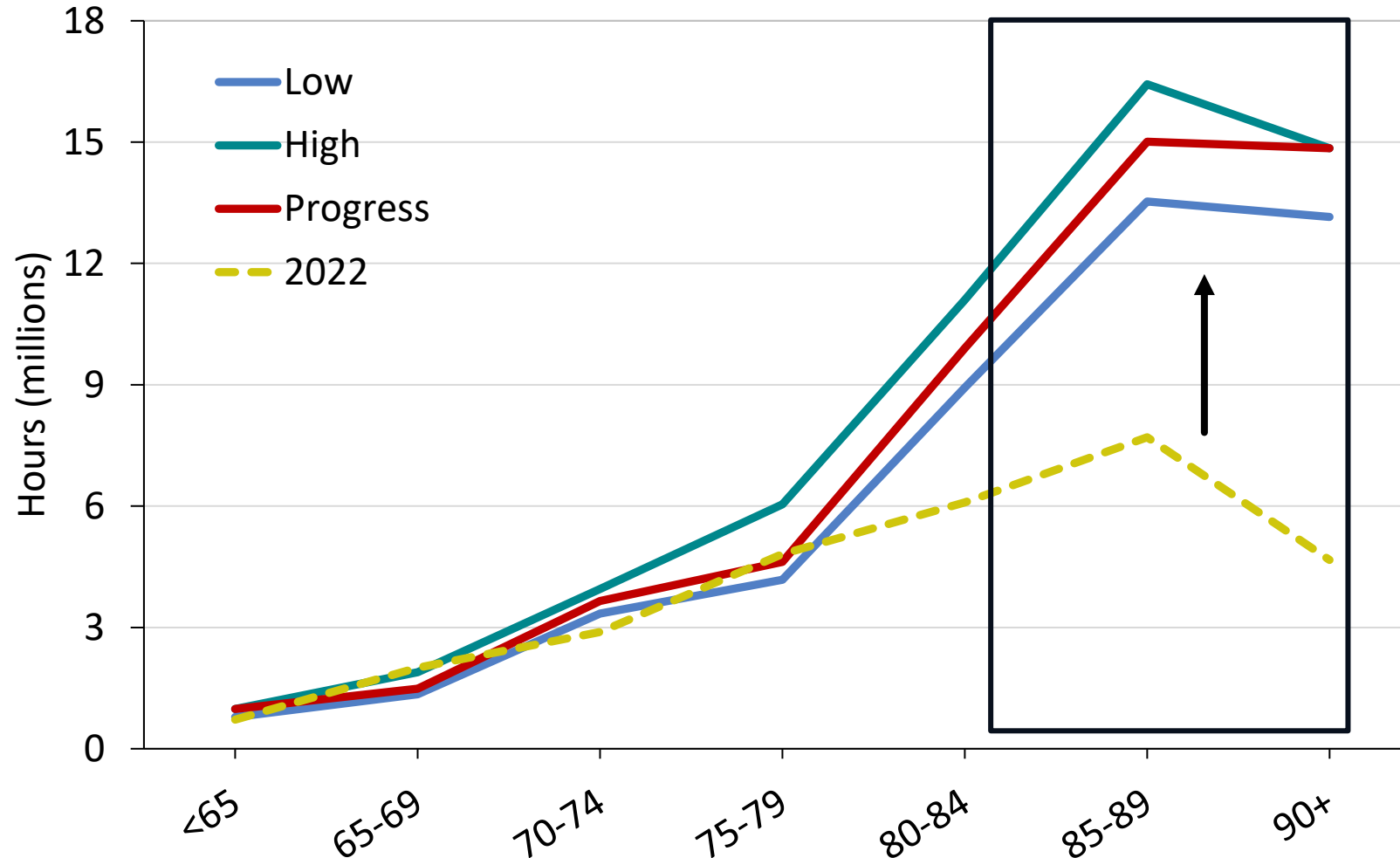


Home support hours – 2040

Scenarios	2022	Projected requirements 2040	Total growth 2022–2040	Average annual growth 2022–2040
	N hours (millions)	N hours (millions)	%	%
Status quo	28.7	49.3	72%	3.1%
Low pressure		44.9	57%	2.5%
High pressure		54.9	91%	3.7%
Progress		50.2	75%	3.2%

Home support hours – 2040 by age

Projected Hours Required by Age – National



- Median age of recipient increases to 87 years
- Complexity of care higher in oldest populations

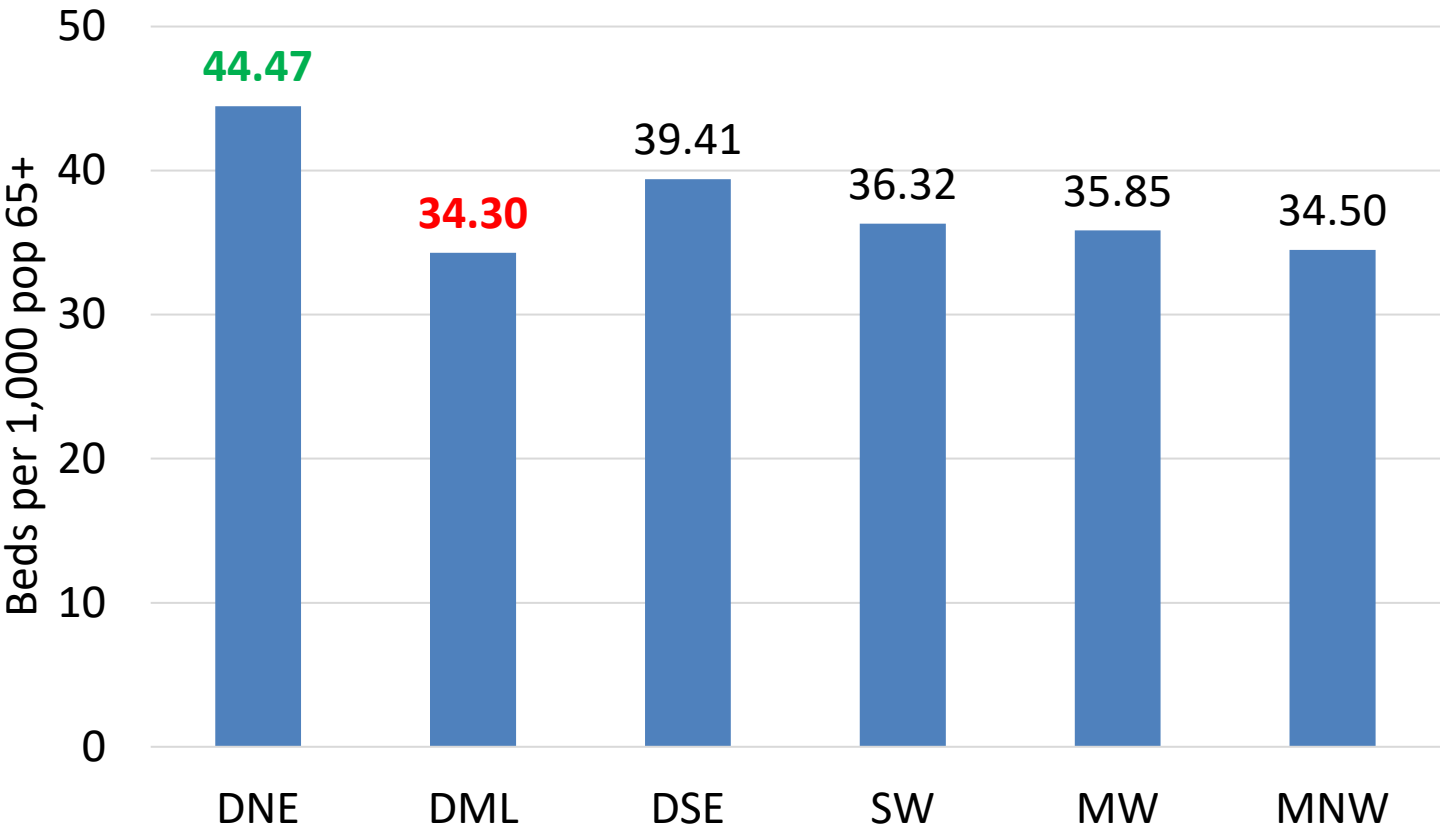
Long stay beds – 2022



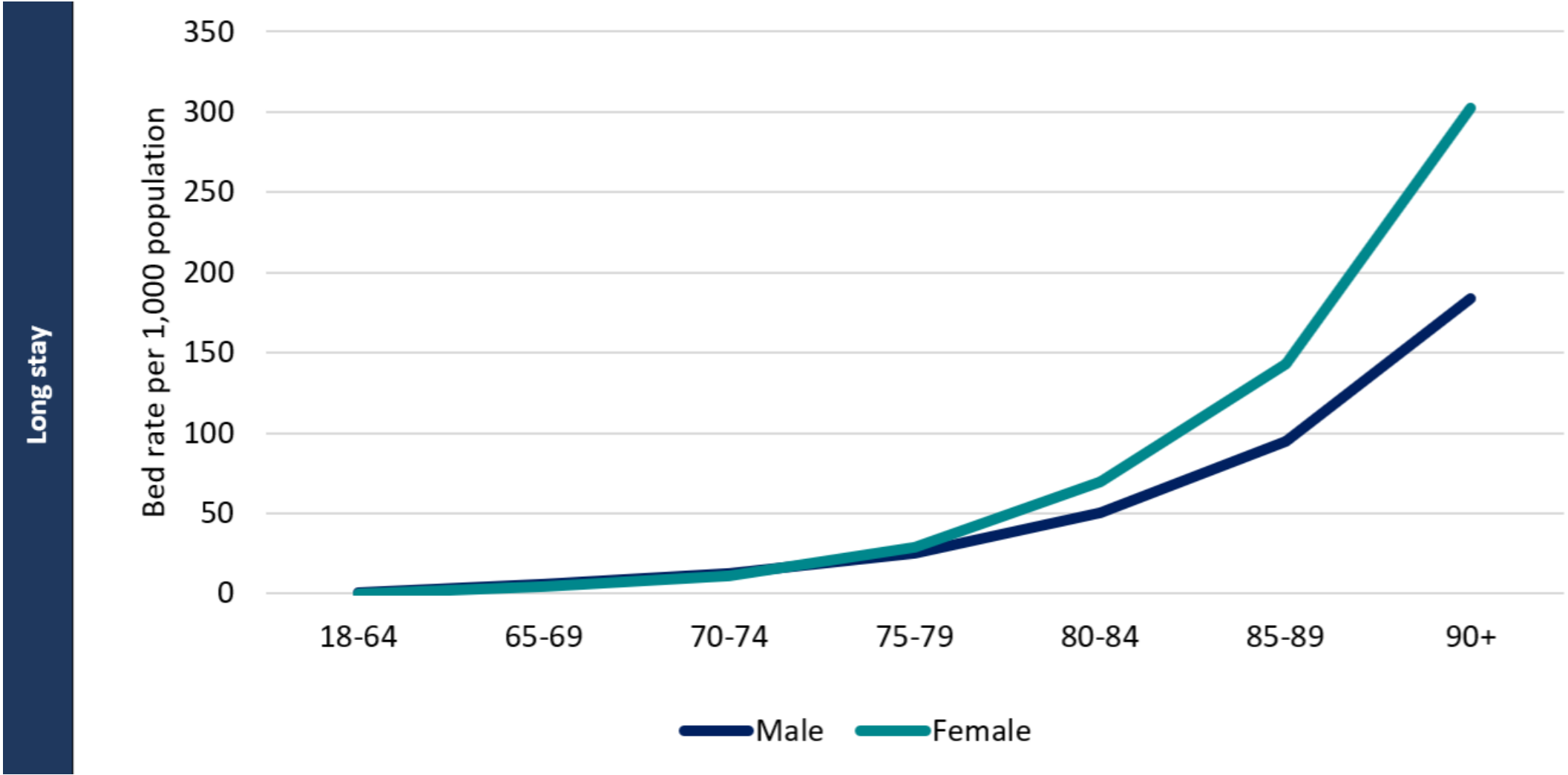
National

	Beds
Public LTRC homes	4,814
Voluntary & private LTRC homes	24,765
Total long stay beds	29,579

Regional



Long stay bed – 2022 age & sex distribution

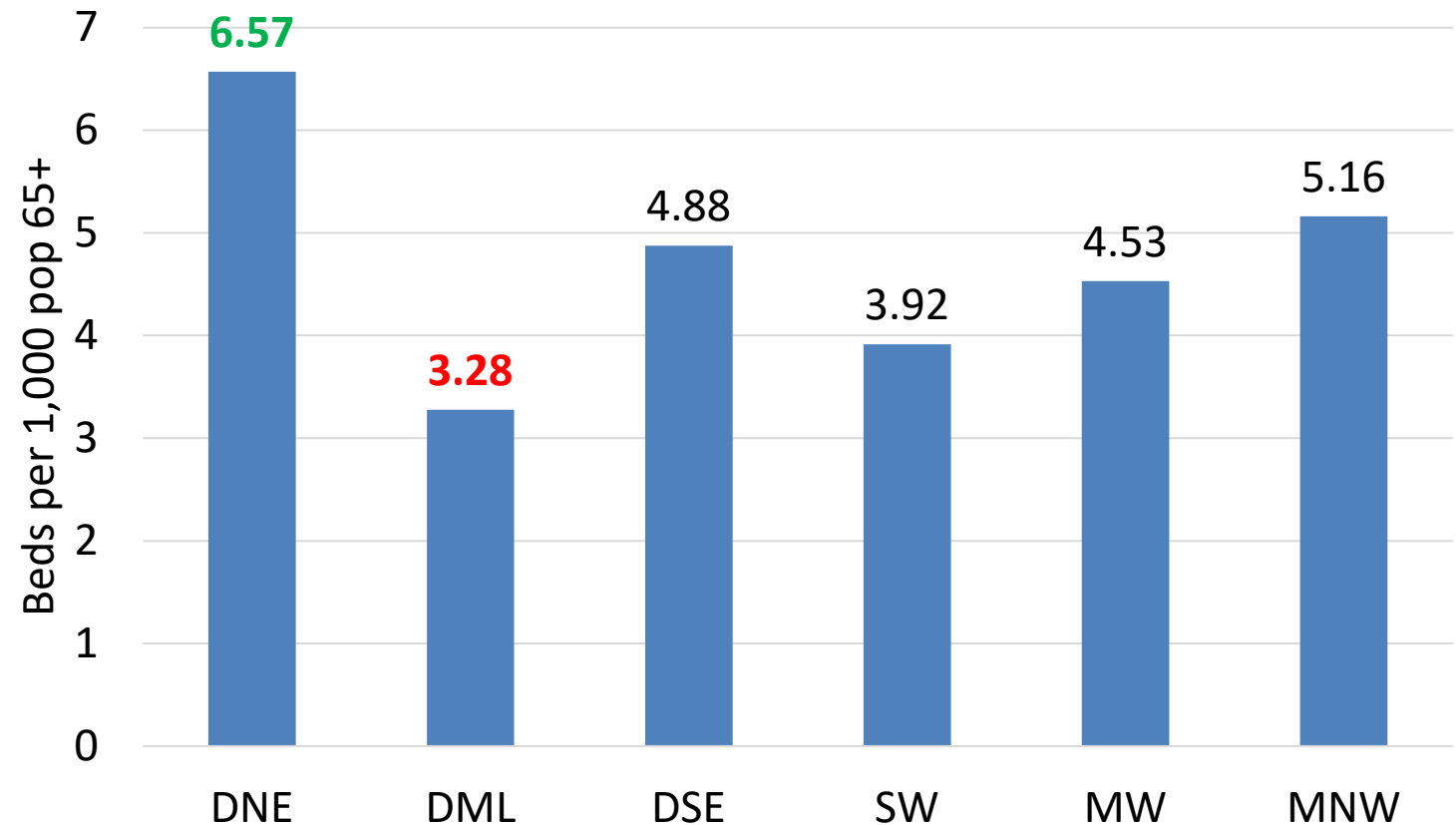


Short stay beds – 2022

National

	Beds
Long stay	
Public LTRC homes	4,814
Voluntary & private homes	24,765
Total long stay beds	29,579
Short stay	
Public LTRC homes	1,961
Voluntary & private homes	1,784
Total short stay beds	3,745
Total LTRC beds	33,324

Regional

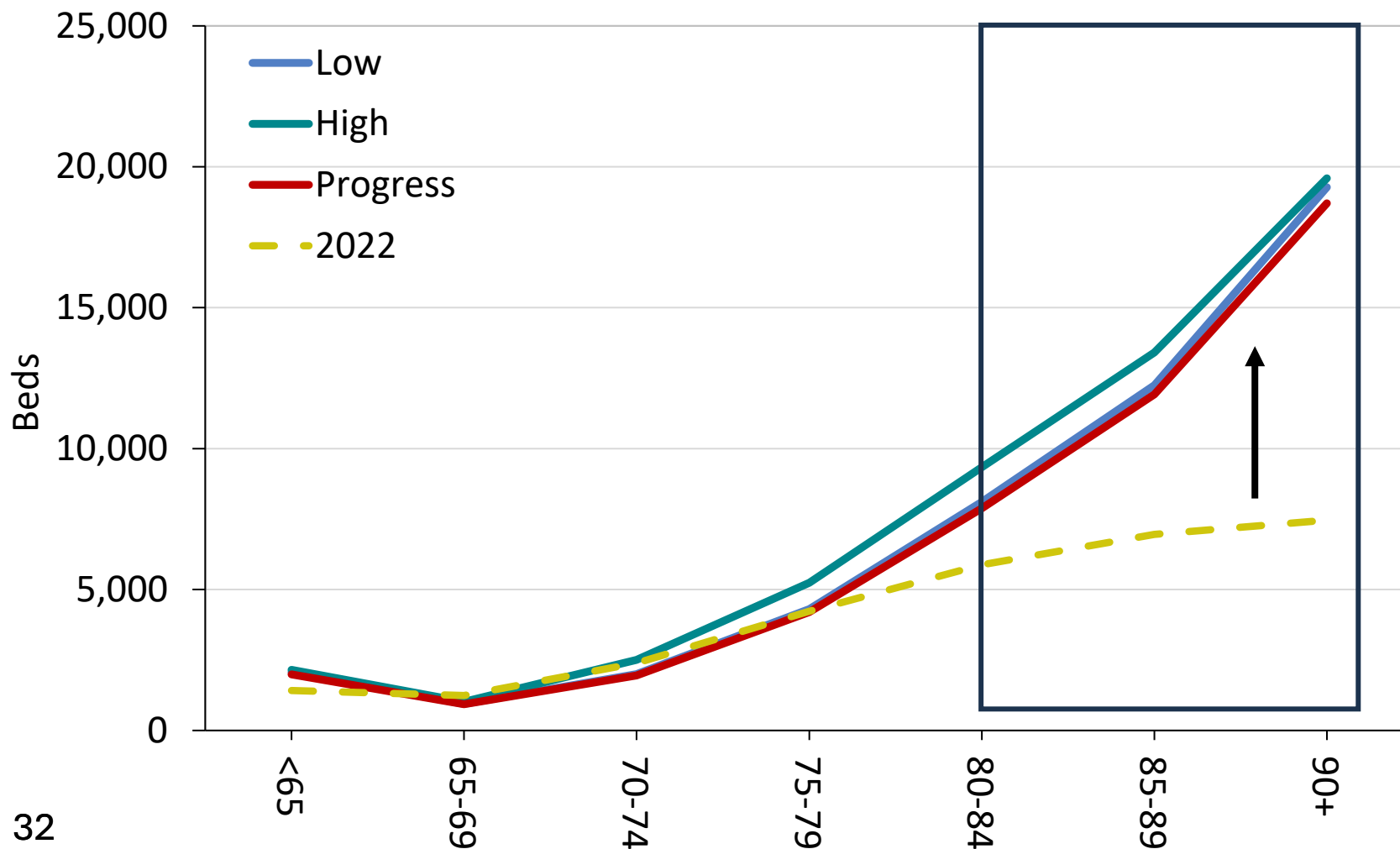


Long stay and short stay beds – 2040

Scenarios	2022	Projected requirements 2040	Total growth 2022–2040	Average annual growth 2022–2040
	N beds	N beds	%	%
Short stay				
Status quo	3,745	6,894	84%	3.4%
Low pressure		6,431	72%	3.0%
High pressure		7,265	94%	3.7%
Progress		6,494	73%	3.1%
Long stay				
Status quo	29,579	52,331	77%	3.2%
Low pressure		48,955	66%	2.8%
High pressure		53,266	80%	3.3%
Progress		47,588	61%	2.7%

Long stay beds – 2040 by age

Projected Long Stay Beds Required by Age - National



- Median age of resident increases to 88 years
- Complexity of care higher in oldest populations

General Practice projections

SHEELAH CONNOLLY

THEANO KAKOULIDOU

ELLEN MCHUGH

General Practice | Baseline



■ General Practitioners (GPs)

- Consultation rates – Healthy Ireland
 - Limitations
- Workforce – HSE

■ General Practice Nurses (GPNs)

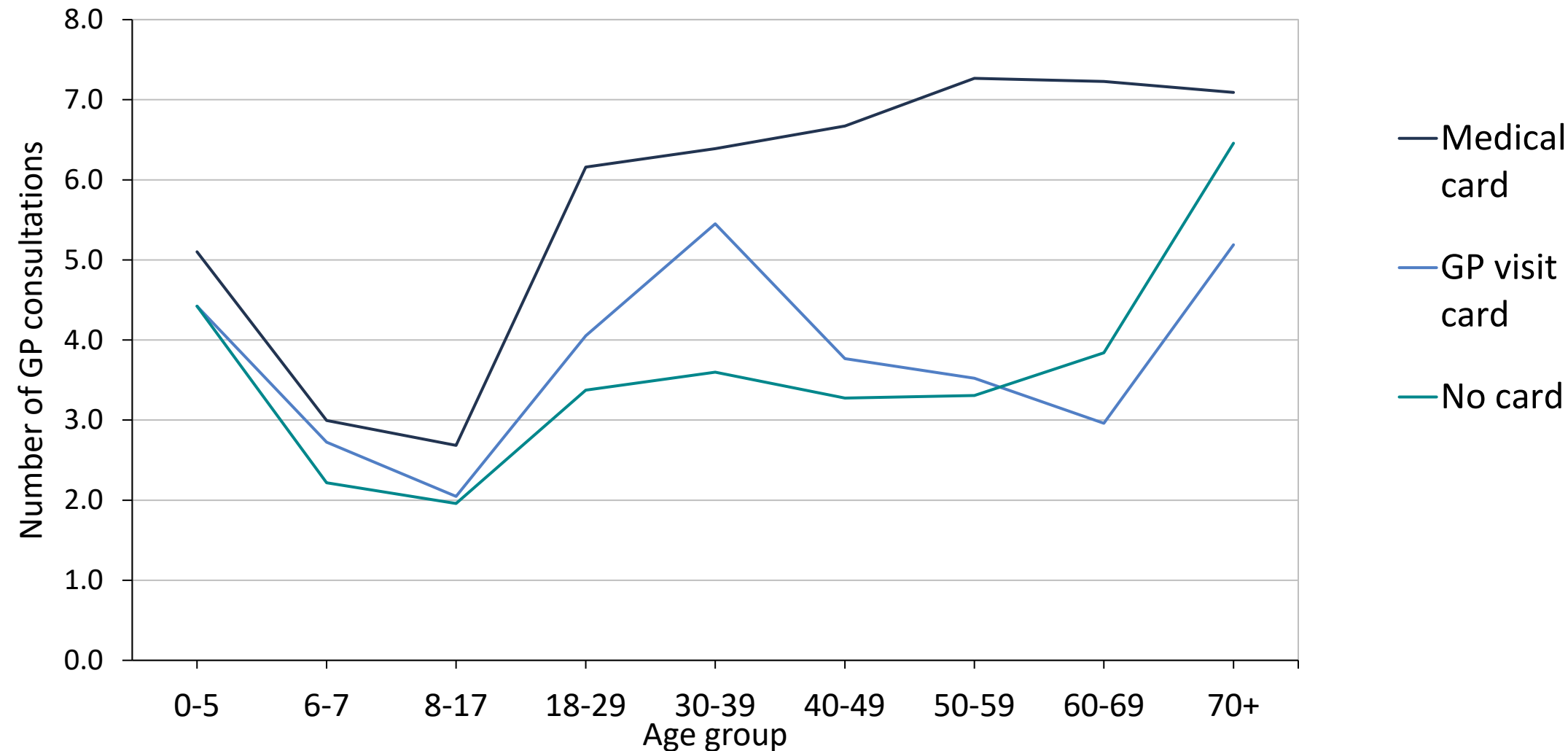
- Consultations – Healthy Ireland and Growing up in Ireland study
 - Limitations
- Adjustment for childhood vaccines
- Workforce - Nursing and Midwifery Board of Ireland

General Practice | Scenarios

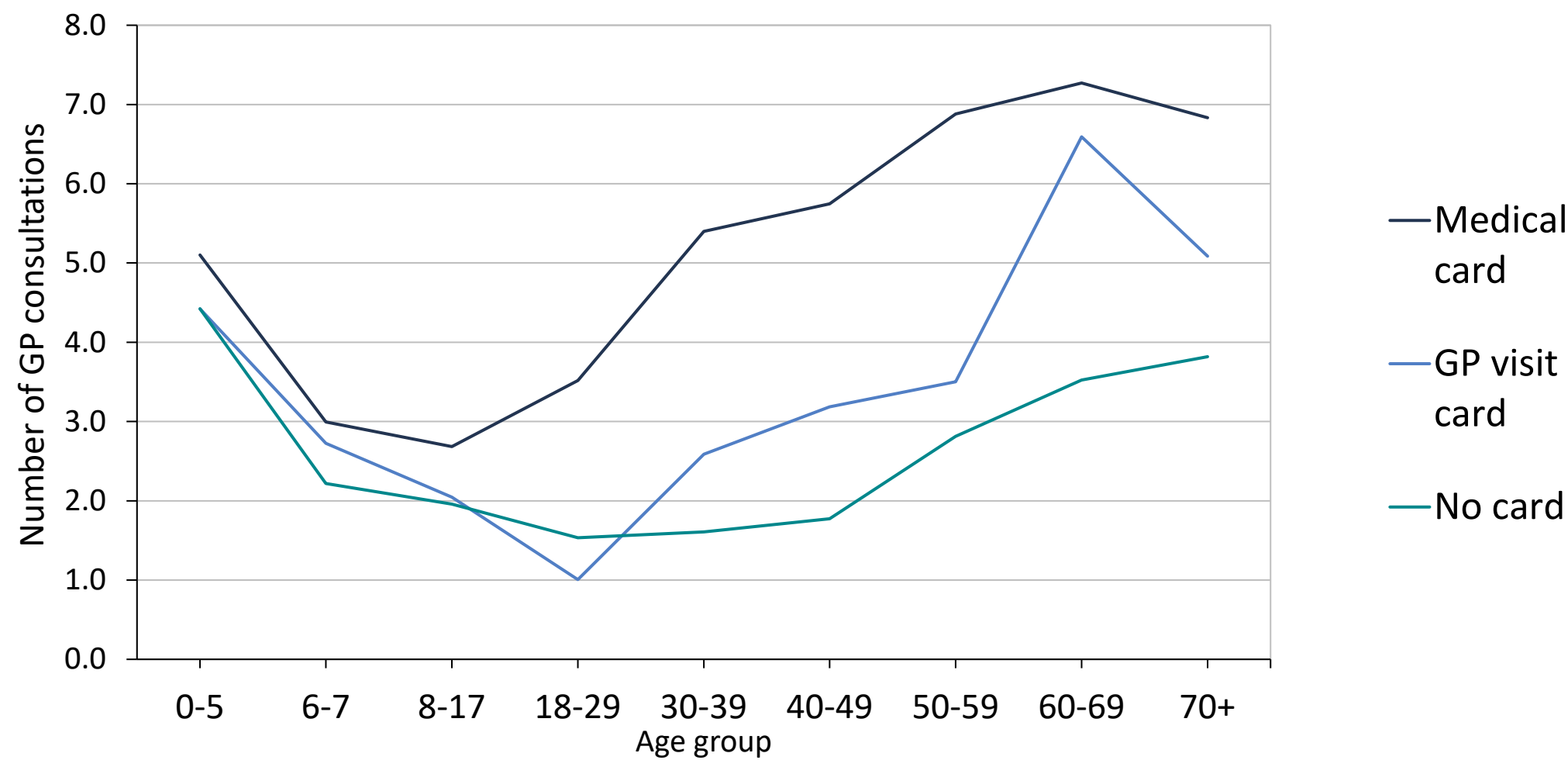


		Scenarios		
		Low pressure	Central	High pressure
Assumptions	1) Population growth and age structure	Central	Central	High
	2) Healthy ageing	Moderate Healthy Ageing	-	-
	3) Uptake of GP visit card	Varies by group – 50%-95%	Varies by group – 60%-95%	Varies by group – 70%-95%
	4) Uptake of chronic disease treatment programme	Increase in demand for new cardholders 85% 2 extra GP & GPN visits; 1 less regular GP visit	Increase in demand for new cardholders 85% 2 extra GP & GPN visits; 1 less regular GP visit	Increase in demand for new cardholders 85% 2 extra GP & GPN visits; no reduction in regular GP visits

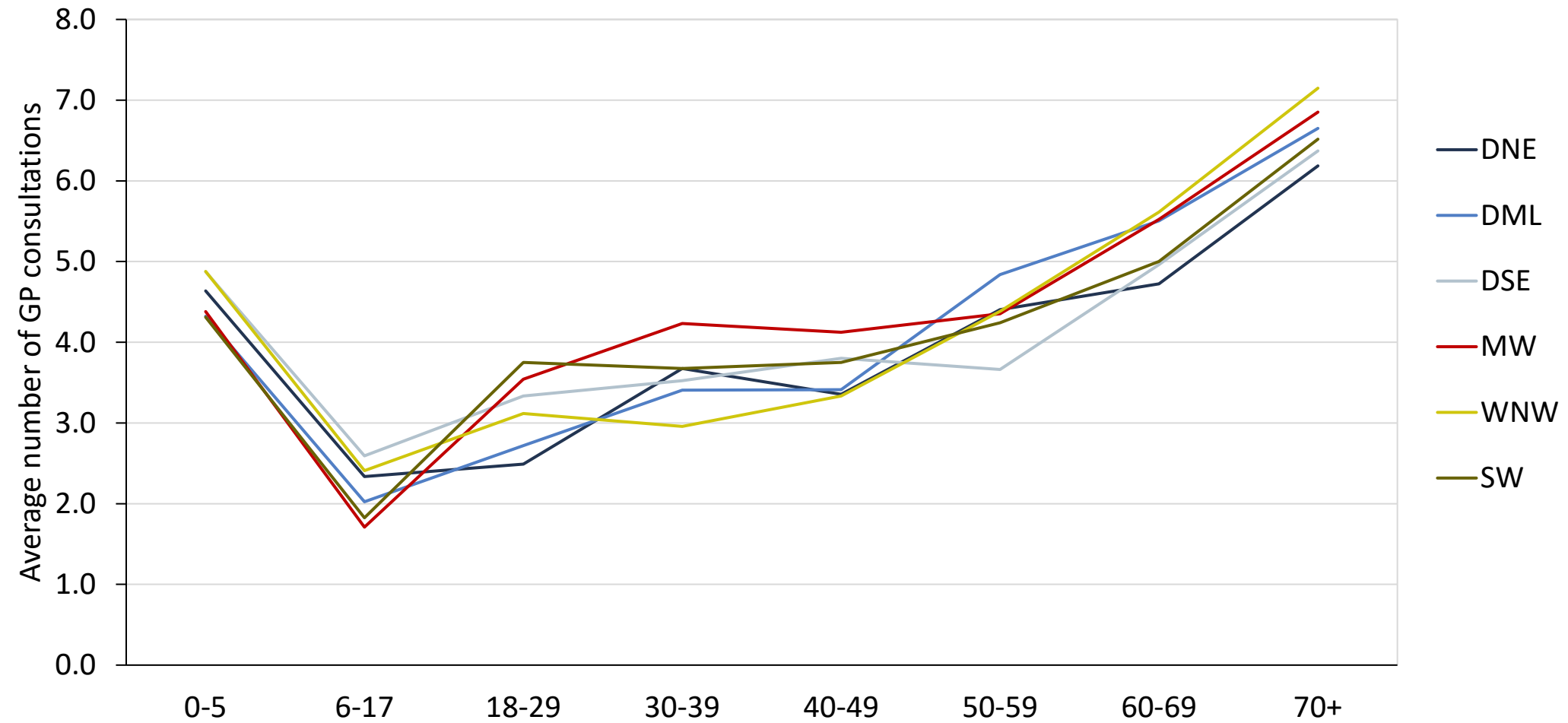
Average number of GP consultations by age-group and card status, females, 2023



Average number of GP consultations by age-group and card status, males, 2023



Average number of GP consultations by age-group and region, 2023

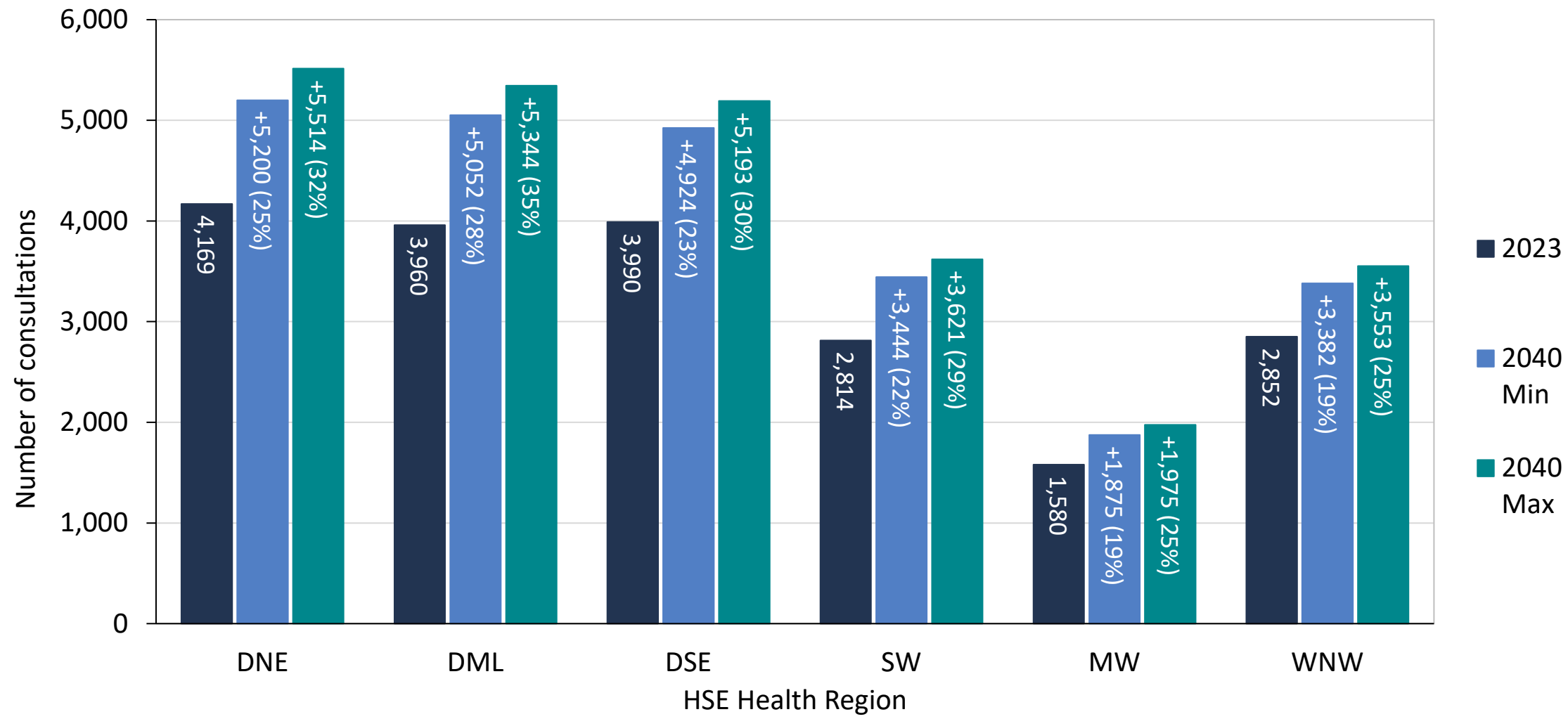


General Practice | National projections

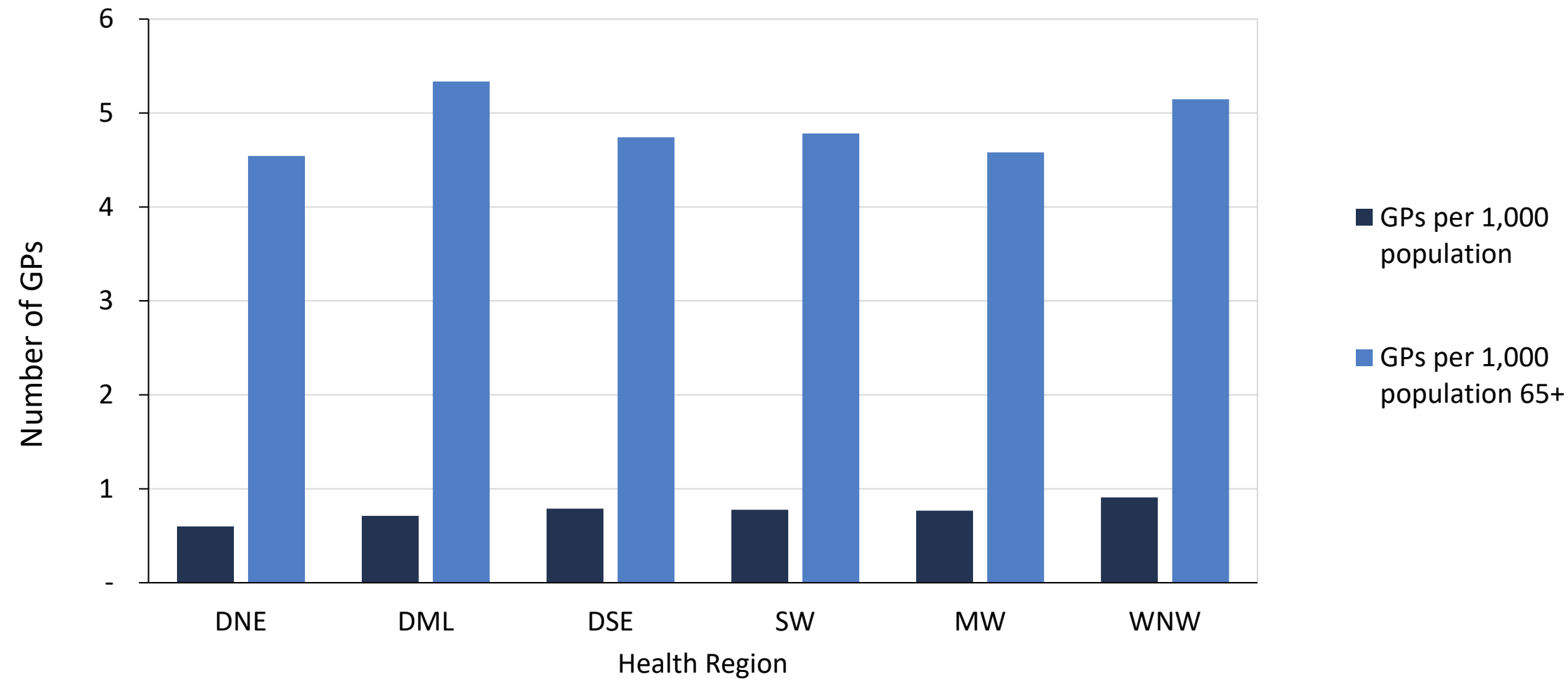


	2023 Baseline	2040		<u>Average annual growth 2023-2040</u>
		Projected additional	Total	
	N ('000)	N ('000)	N ('000)	%
General Practitioners (GPs)				
Consultations	19,364	4,513 - 5,836	23,878 - 25,201	1.2 - 1.6
General Practice Nurses (GPNs)				
Consultations	5,715	1,829 - 2,081	7,543 - 7,796	1.6 – 1.8

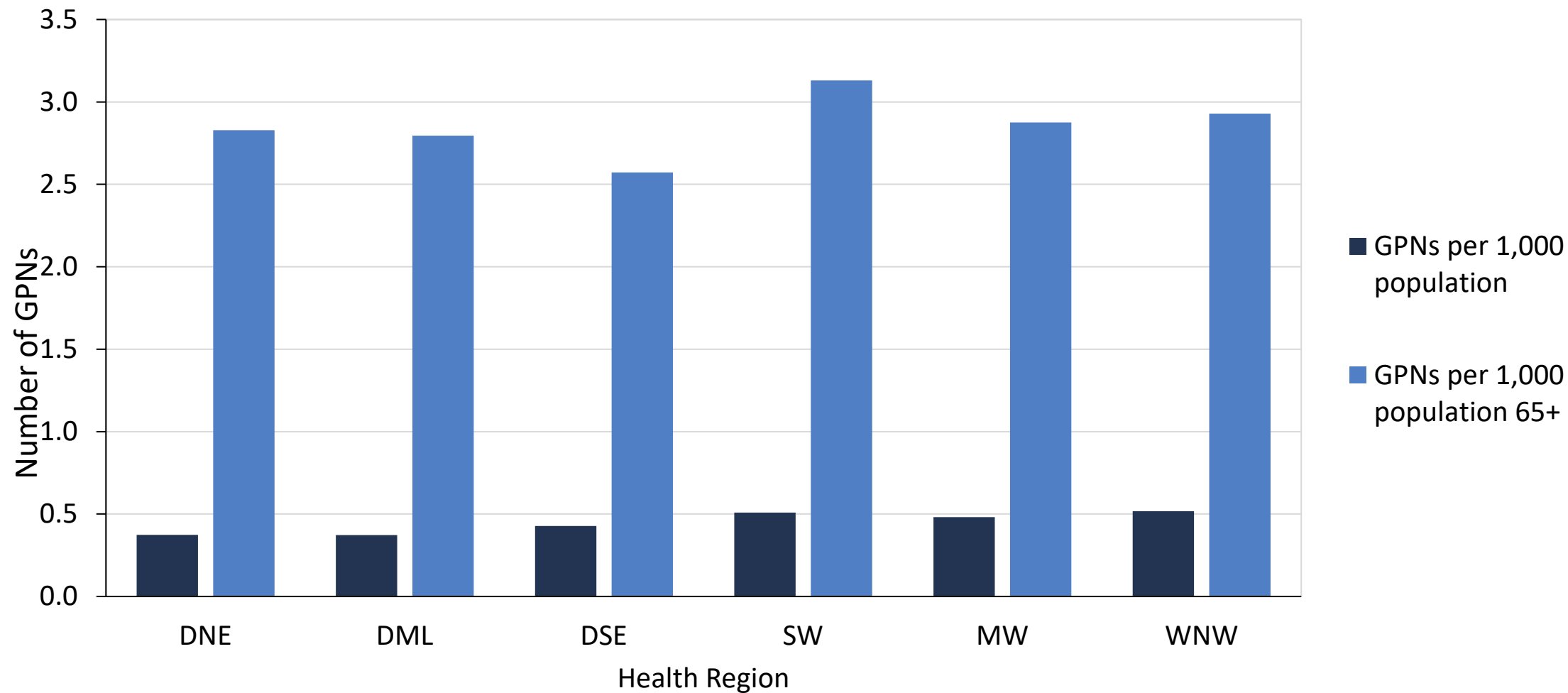
General Practice | regional projections



Workforce | General Practitioners (2023)



Workforce | General Practice Nurses (2023)



Converting demand projections to workforce requirements – three approaches



- 1) Based on the current workforce to activity ratio –
 - national and regional
- 2) Based on a reduced workforce-to-activity ratio
 - national
- 3) Based on the region with the highest per capita workforce
 - regional

GP projection requirements – national



Scenarios	2023	2040		Total growth 2023–2040
		Projected additional	Total	
	N	N	N	%
Headcount				
Low pressure	3,928	943	4,871	24
Central		963	4,891	25
High pressure		1,211	5,139	31
Decrease in consultations				
Low pressure	3,928	1,484	5,412	38
Central		1,506	5,434	38
High pressure		1,782	5,710	45

Regional GP projection requirements – based on current workforce to activity ratio

	2023	Projected additional 2040		
		Low pressure	Central	High pressure
	N	N	N	N
Dublin North East	731	187	191	242
Dublin Midlands	786	223	228	281
Dublin South East	786	189	193	242
South West	591	136	138	173
Mid West	325	63	64	83
West North West	709	136	139	178
National	3,928	943	963	1,211

Regional GPN projection requirements – based on current workforce to activity ratio



	2023	Projected additional 2040		
		Low pressure	Central	High pressure
	N	N	N	N
Dublin North East	455	161	166	186
Dublin Midlands	412	162	167	183
Dublin South East	426	144	149	163
South West	387	116	120	132
Mid West	204	59	61	68
West North West	403	103	106	119
National	2,288	745	769	851

Summary

- Significant growth in demand and capacity requirements, nationally and across all regions and scenarios
 - Main driver is population growth and ageing
- Opportunity for long-term planning – a chance to mitigate demand
 - Targeting population health
 - Expand primary and community care provision
 - Improve efficiency within the hospital sector – surgical hubs, elective-only hospitals, virtual wards, step down services, optimise workforce mix
- Significant data limitations across the health sector

Data gaps

1. Lack of individual health identifier and electronic health records
2. Lack of data on privately provided/financed services
3. Limited data on primary and community care services

Thank you

Questions?



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