An Roinn Sláinte
DEPARTMENT OF HEALTH

HEALTH SERVICE CAPACITY REVIEW 2018 EXECUTIVE REPORT

REVIEW OF HEALTH DEMAND AND CAPACITY REQUIREMENTS IN IRELAND TO 2031 – FINDINGS AND RECOMMENDATIONS

Glossary

ABF	Activity Based Funding
ACC	Adult Critical Care
AHPs	Allied Health Professionals
AL	Annual Leave
AMAU	Acute Medical Assessment Unit
AMD	Age-related Macular Degeneration
AMU	Acute Medical Unit
ANP	Advanced Nurse Practitioner
CHC	Children's Hospital Group
CHO	Community Healthcare Organisation
CIT	Community Intervention Team
COPD	Chronic Obstructive Pulmonary Disease
CQC	Care Quality Commission
CSO	Central Statistics Office
DAY	Day Case
DM	Dublin Midlands (Hospital Group)
DOH	Department of Health
DOSA	Day of Surgery Admission
DRG	Diagnosis Related Group
ED	Emergency Department
EL	Elective
ENT	Ear Nose and Throat
FA	First Appointment
FU	Follow-Up (Appointment)
GP	General Practitioner
GDP	Gross Domestic Product
GPC	General Practice Co-operatives
HCP	Home Care Packages
HDU	High Dependency Unit
HG	Hospital Group
HHH	Home Help Hours
HIPE	Hospital Inpatient Enquiry database
HIQA	Health Information and Quality Authority
HPO	Healthcare Pricing Office
HSE	Health Service Executive
ICGP	Irish College of General Practitioners
ICU	Intensive Care Unit
IE	Ireland East (Hospital Group)
IHCP	Intensive Home Care Packages
IP	Inpatient
KPI	Key Performance Indicator
LOS	Length of Stay
MAU	Medical Assessment Unit
MIUs	Minor Injury Units
MDTs	Multidisciplinary Teams
NQAIS	National Quality Assurance Improvement System
NEL	Non-Elective
NHQRS	National Healthcare Quality Reporting System
NHS	National Health Service
NHSS	Nursing Homes Support Scheme
NTPF	National Treatment Purchase Fund
OECD	Organisation for Economic Co-operation and Development
OOH	Out of Hours
OPAT	Outpatient Parenteral Antimicrobial Therapy
OPD	Outpatient Department
OPFA	Outpatient First Appointment
OPFU	Outpatient Follow-Up Appointment
PN	Practice Nurse
PHN	Public Health Nurse
PHY	Physiotherapist
OT	Occupational Therapist
S&LT	Speech and Language Therapist
PET	Patient Experience Times
POD	Point of Delivery
PU	Planned Utilisation (occupancy rate)
RC-STB	Residential Care Short Term Beds
RC-LTB	Residential Care Long Term Beds
RCSI	Royal College of Surgeons Ireland (refers to the Hospital Group)
SG	Steering Group
SIVUH	South Infirmary Victoria University Hospital
SL	Sick Leave
SUHC	Saolta University Health Care (Hosp Grp)
UL	University of Limerick (Hospital Group)
WHO	World Health Organization
WTE	Whole Time Equivalent

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1 EXECUTIVE SUMMARY

Capacity analysis is a key element of healthcare planning

The Capacity Review was commissioned as a response to a commitment in the *Programme for a Partnership Government*. This commitment recognised the pressures being faced across the health system and the experiences of many patients, service users and families in terms of timely access to healthcare. It was also an indication of the Government's desire to plan appropriately for the future.

Systematic analysis of capacity requirements should be a normal component of any healthcare system's planning cycle. The last system level capacity review was undertaken in 2007. A recovering fiscal and economic position, which has resulted in a stabilisation and increase in health budgets in the last three years, and the development of a National Development Plan for the next decade, mean that a capacity review at this point in time is timely and appropriate. The Review also provides a capacity planning framework which can be updated in the future.

The health system in 10 years could be vastly different from that of today

There is wide consensus that our current health service is not fit for purpose and needs to evolve considerably in the coming years. The system as currently configured is overly hospital-centric, community-based services are fragmented and there is a lack of integration within and across different services. Acute care has become the default option for many, and reactive care takes precedence over proactive, planned and preventive care. The system is not best meeting the needs of patients and is unsustainable in its current form. This was one of the fundamental findings of the Oireachtas Committee on the Future of Healthcare. The Sláintecare report urges the development of a more integrated health service, centred on a comprehensive community-based care model and provides the framework within which our health services will develop over the coming decade.

It is within this context that this Capacity Review was undertaken. At the outset, it was agreed to extend the scope of the Review beyond acute hospital bed capacity and to include key components of primary care and services for older persons. This was a clear acknowledgement of the interdependencies of capacity across the system and the need to consider reform proposals as part of the analysis. In particular, the Review was tasked with considering changes that would arise from a shift in the current hospital dominated care model to one more orientated around community-based care.

Differing views on the current health system exist

There are various views among stakeholders on capacity levels in the current system. Two contrasting views are often cited. The first focuses on access issues such as long waiting times and potential high levels of unmet need to suggest that there is significant under-capacity in most parts of the health system. High bed occupancy levels of the order of 95-100% in the acute sector further support this position.

By contrast, a second view is expressed that high levels of funding, combined with suboptimal outcomes and patient experiences, suggests there are fundamental issues with our model of care and significant performance and productivity issues across the health system. The argument is made that the problem is not with the level of capacity, but how that capacity is being used.

Both views are valid, but offer only partial explanations of the problems being currently experienced. This is borne out in the analysis. There is, however, broad agreement that demand for health services is going to increase significantly in the next decade as a result of demographic and epidemiological trends, growing public expectations and innovations in technology and medicine. This requires careful consideration of capacity needs across the system.

The approach to capacity analysis

The analysis was undertaken using a purposely designed demand and capacity model. The analysis only considers additional capacity requirements compared to current levels of provision. It does not take account of the need for replacing or upgrading existing capacity (e.g. outdated estate, equipment, retirement of staff). It also does not seek to estimate costs of additional capacity requirements.

2016 has been used as the base year and projections for capacity requirements over the period 2017 – 2031 have been produced for a range of service areas. Future levels of demand have been forecast using current levels of activity and unmet demand and projections for demographic and non-demographic growth. The capacity implications of projected changes in demand were then calculated.

The outcomes of the Review have been presented in two scenarios:

1. a "baseline status quo" scenario which assumes the system continues to operate as is, with no change in configuration, utilisation or productivity, and
2. a "reform" scenario which examines the potential of a range of reforms that would align with current national policies and reflect a desired future state for our health services in 15 years.

Our demographic projections are positive but challenging

Unlike other European countries, Ireland's population continues to grow in absolute terms at a significant rate and we continue to have one of the youngest populations in Europe. We are also significantly different in that we are only now really starting into a new demographic phase of population ageing. The rate of increase in the 65+ age cohort is considerable. This increase is happening quickly and steeply and will become even more pronounced over the next 15 years. The following are key headline projections from the analysis for the period 2016 – 2031:

- 12% growth in overall population
- 59% growth in 65+ population
- 95% growth in 85+ population

Older age cohorts are the highest users of the majority of health care services. For example, in 2016 even though they represented only 13% of the population, 40% of people who had a day case procedure were over the age of 65. Within older person services, those aged 85 and over represented 40-50% of those receiving care. This means that the increases in these age cohorts will greatly compound the impacts on demand, i.e. not just have additive impacts on demand.

It is important to acknowledge that there continues to be a debate around the impact of an ageing population on healthcare utilisation. Can we assume that the demand for healthcare will increase linearly with changes in the population? Evidence differs around trends in health status and incidence of disease and disability. While some evidence points to an older population that is healthier than generations before it, other evidence points to an increase in risk factors and prevalence of chronic disease. In any event, the sheer scale of increase in our 65+ population and the absolute increase in numbers of people in this age cohort will create significant additional demand for all our services.

Continuing with the status quo is unsustainable

The first scenario examined in the Review has been titled the "baseline scenario". This scenario examines capacity requirements over the period assuming the status quo prevails. That is, there would be no significant change in the way we deliver health services and how people use health services – from either a model of care perspective (do the right things in the right settings) or from a productivity perspective. In particular, this would see a continuation of our over-reliance on the acute hospital system.

This scenario would require significant increases in capacity across all aspects of the health service, including a 37% increase in primary care workforce (including GPs), 40% increase in residential care beds and a 70% increase in homecare over the period to 2031.

What is really stark is the increase in acute hospital beds in public hospitals – a 40% increase equating to an additional 5,360 beds. When account is taken of current potentially unsafe occupancy levels across the hospital system, this requirement increases to 7,150 beds. International evidence indicates that high bed occupancy is associated with a number of adverse factors including increased risk of healthcare associated infections such as MRSA, increased mortality, increased probability of an adverse event, risks to staff welfare and reduced efficiency in patient flow. Occupancy levels have been persistently high for many years and need to be addressed. It also means that at times of peak demand, such as experienced during winter months, hospitals have extremely limited surge capacity.

These baseline findings are close to the range of projected percentage demand increases, assuming no change in models of care, in the recently published report from the ESRI "*Projections of Demand for Healthcare in Ireland, 2015 – 2030: First report from the Hippocrates Model*".

It is clear that nobody believes we should build capacity around the system as it is currently configured. It is not feasible from a financial and sustainability perspective, and even more importantly it would go against the widely held consensus on the need to develop a more appropriate model of care. The development of capacity in line with the baseline scenario is simply not an option.

Where could we be? The case for change

The second scenario presented in the report is based on a desired future state for the health service. It seeks to demonstrate the potential impact on capacity across the health service of three interlinked reform areas, namely:

- health and wellbeing initiatives,
- an improved model of care that repositions the health service towards a community-based care model with a specific focus on older persons, and
- productivity measures with a specific focus on acute hospital services.

The measures outlined under this scenario are not new, and are very much in line with proposals in the Sláintecare report and various other national policy documents. These are clearly not the only changes that could or should occur over the next 15 years. These areas have been selected for the purposes of this Review on the basis that they are expected to have the most significant impact from a capacity perspective.

There is a strong case for comprehensive strategies to improve the health and wellbeing of the population. Many of the illnesses of the 21st century are lifestyle related and can be prevented or their impacts may be mitigated by addressing risk factors, health behaviours and health inequalities. Reducing the population prevalence of tobacco use, harmful alcohol consumption, physical inactivity, and other unhealthy lifestyle behaviours will reduce the incidence of many diseases.

The case for the development of a more integrated, proactive and community-based care model is broadly accepted. For the purposes of this Review, analysis was concentrated on the 65+ population given the high level of utilisation of health services by this cohort, and the likelihood that they would benefit most from a reformed care model as their care needs are often complex and enduring. More proactive and planned care in the community, greater provision of home care, short term respite and step down care, better use of ambulatory care, and improved care pathways within and between healthcare sectors can all lead to a more effective model of care and improved health outcomes. Adopting such an approach for other population groups with chronic and/or complex needs should be part of the overall reform agenda.

Finally, a range of productivity measures were examined. All sectors, services, organisations – public and private – should ensure that there is an enduring focus on productivity.

Health care is no different. The acute sector was the focus of this scenario given the scale of services provided and the opportunities for improvements but this could equally apply to other areas. Progress has been made in recent years in improving hospital productivity and efficiency evidenced through reduced Average Length of Stay, increased proportion of appropriate procedures carried out as day case, and improved day of surgery admission rates. However, there is still room for improvement. New Hospital Group structures can optimise the configuration of services across the hospital network, procedures can be undertaken in lower acuity settings, and throughput and patient flow can be improved across the system.

The scale of projected demand pressures over the next decade is such that even in a best case scenario where all three reform areas are robustly implemented, the level of increase in demand will only be mitigated i.e. “bend the demand curve”.

There will be a requirement for greatly increased levels of investment in primary and community based care and added impetus to health and wellbeing initiatives

To bend this demand curve, capacity investments over and above the baseline scenario in primary and community based care will be required to ensure a real and sustained shift in the model of care. Health and wellbeing initiatives will need continued support and investment if they are to achieve their desired impact in the coming decades.

The analysis of this future state scenario (taking account of all three reform areas) shows a requirement for a 48% increase in primary care workforce, 43% increase in residential care beds and a 120% increase in homecare over the period to 2031.

Increased capacity in these areas is particularly dependent on workforce. There are already challenges in recruiting and retaining primary care and homecare staff, and this will remain one of the critical limiting factors for developing comprehensive services in the years ahead.

And there will still be a requirement for additional acute hospital capacity

Even with significant reform, the analysis shows there would still be a net requirement for acute hospital beds of the order of 2,590 in the public system by 2031. In coming to this

assessment, we need to be conscious of international trends in health system capacity development which has seen a stabilisation or reduction in acute capacity in recent times as the role of community-based care has grown. But we also need to be conscious of the Irish context. The number of acute beds has reduced in the last decade. Occupancy rates are running close to 100% across the system; these are above international norms, and pose a legitimate risk to patient safety. Waiting times across the system are at unacceptably high levels. These factors, combined with future demographic projections, suggests that additional acute bed capacity in our hospital system is justified.

However, adding acute beds is only part of the answer. Indeed, there is a risk that increasing bed capacity on its own could be counter-productive. Instead of reducing occupancy rates, new beds are likely to be filled immediately with unmet demand. There is also a risk that it could negatively impact on productivity and reform ambitions. It is imperative that investment in additional acute capacity is supportive of overall ambitions for a reformed and more productive model of acute care. Investments must support efforts to strategically plan and deliver services at a national and hospital group level. A key principle will be the need to achieve greater separation between scheduled and unscheduled care. Furthermore, commitments to increase capacity cannot delay or substitute the urgency for improved productivity and patient flow improvements.

Understanding the limitations of this Review is important

Any review of this nature has its limitations and conclusions drawn must be interpreted and considered in the context of these limitations. It is well recognised that the data landscape for the Irish health sector is far from ideal. While there is considerable data available for public acute hospitals, detailed data sources for primary and community care are much less developed. In other areas such as general practice and private hospitals[1], while data does exist, it is not made publicly available. This requires assumptions to be developed and limits the comprehensiveness of analysis, even in the baseline scenario presented in this report. For acute hospital services, where the private sector undertakes a significant proportion of activity, this poses particular challenges. The recent ESRI report concluded that private hospitals[1] account for 15% of inpatient bed days, and undertake 30% of all day-patient cases nationally. The absence of trend data for private hospitals and the changing proportion of activity between the two sectors is a significant limitation.

It is important to stress that the analysis in the report of a potential future state scenario is hypothetical and thus cannot be exact or comprehensive. It has drawn on international and national evidence in as far as possible, but it is not possible to predict the capacity impact of reforms of this nature with any real certainty. In practice the achievable shape of the future health system is likely to lie somewhere between the two extremes set out in this Capacity Review. Nonetheless, it provides valuable guidance on what the potential impact of these measures could be, and demonstrates a strong quantitative case for change. It will be important that clear evaluation frameworks are put in place to continuously monitor and assess the impact of initiatives as they are rolled out and to reassess capacity requirements periodically.

The case for change is clear: reform and investment must now happen in tandem

The conclusions from this Review are quite clear. Significant investment across all health services over the coming 15 year period is required in tandem with a fundamental programme of reform. If reforms are not undertaken quickly and comprehensively, demand will build in line with the baseline scenario. It is very unlikely that the system will cope with these levels of demand and health outcomes and patient safety will be put at further risk.

Investment alone will not deliver the health service we aspire to. Neither will reform or productivity improvements on their own. All three efforts must be delivered in tandem if we are to stand any realistic chance of meeting healthcare needs over the coming decades.

The role of the Capacity Review was to set out in broad terms what the potential impact of possible reforms might be – it was not tasked with detailing a comprehensive reform programme or how those reforms might be implemented. The Sláintecare report has provided a clear direction of travel in this regard, and the forthcoming Sláintecare implementation plan will provide the opportunity to set out how health service reforms can be realised.

[1] Based on estimates and survey data received by the Department of Health in mid-2017, private hospitals in Ireland had at that time an estimated 2,500 acute beds (approximately Inpatient 1,900 and Daycase 600).

Key Findings and Recommendations

Key Findings

Topic	Details
Growth in Demand	The demand for healthcare is expected to grow significantly across the primary, acute and social care settings in the next 15 years as a result of demographic and non-demographic change. This includes: • Up to 46% rise in demand for primary care • 39% rise in the need for long term residential care • 70% increase in demand for homecare • 24% increase in non-elective inpatient episodes in public hospitals
Addressing potentially unsafe levels of bed occupancy	Occupancy levels across the acute hospital system in Ireland are far in excess of international norms. These levels of occupancy compromise patient safety, contribute to the spread of healthcare associated infections, and impede the efficient and effective use of resources and reduce the availability of surge capacity. To reach international standards of bed occupancy would see the need for an immediate injection of the equivalent of an additional 1,260 beds in the system. In practice, an increment in capacity is likely to be achieved with a mix of hospital beds, residential care, homecare packages and enhanced primary care services, as well as management measures to improve patient flow and open currently closed beds.
Baseline capacity forecast	The baseline forecast is for a sharp rise in the capacity needed across all sectors by 2031 to meet forecast demand, including; • A 37% rise in the primary care workforce • Up to 12,000 residential care beds in social care • 70% increase in homecare • 7,150 extra hospital beds in public hospitals including around 5,800 inpatient, 1,000 day case, 160 AMU and 190 adult critical care beds. (This assumes improved occupancy)

Topic	Details
Reform needed to drive more appropriate care models and protect sustainability of system	There is broad consensus that it is neither feasible nor appropriate to plan investments around the current pattern of delivery. Significant reform is needed. International evidence indicates that this should involve greater levels of investment in primary and community based care to create a responsive health system which meets needs and (reasonable) expectations to deliver health gain, and as a consequence mitigates the extent of additional acute hospital capacity needed. Three aspects of a reformed health system have been considered: health and well-being initiatives, recalibration towards community-based care, especially for older people and productivity improvements. All involve a shifting of care away from hospitals which is supported by enhanced models of care within hospitals. Taken together, these represent a best case for the level of capital investment in hospital capacity needed. Full implementation of all three reforms would alter the capacity needed across all sectors by 2031 to: • 2,590 extra hospital beds including around 2,100 inpatient, 300 day case, and 190 adult critical care beds • A 48% increase in the primary care workforce • 13,000 residential care beds, and • 120% increase in homecare (home help hours and homecare packages)
Further work required	The analysis has established two extremes that define the range of potential capacity needs and the level of reforms involved. Further work would be needed to assess the optimum reform strategy that takes account of workforce, the whole life cost of services, eligibility arrangements and their impact on implementing reforms, the feasibility of delivering infrastructure and impact on operational services in the timeframe. It would also need to take account of the wider implications arising from major reconfigurations of services across hospitals.

Recommendations

Topic	Detail
Investment in out-of-hospital care	Multi-annual expenditure plans should be established to support the development of enhanced capacity in primary and social care and health and well-being initiatives.
Short term hospital bed capacity improvements	Plans should be made for the urgent provision of additional capacity in acute hospitals to alleviate currently high levels of bed occupancy, and difficulties with appropriate access to acute hospitals and patient flow.
Capital investment	Capital investment has a key role to play both in enhancing service provision and as a driver of reform. Investment should support a clear and sustained programme of reform and productivity improvement. Capital investment plans for the period to 2031 should incorporate provision for enhanced capacity of at least an additional: • 2,590 hospital beds (Inpatient, adult critical care and day case beds). • 13,000 residential care beds • Primary care facilities to reflect the need for a 48% uplift in the primary care workforce. Planning for delivering additional capacity should take place immediately and should be based on population need. In the case of acute hospitals, a key principle will be the need to achieve greater separation between scheduled and unscheduled care. Hospital Groups should be tasked with determining capacity needs of their region as part of Strategic Planning. In addition, a significant programme of investment in ICT and eHealth will be required.
Next steps	Further consideration should be given to : • The feasibility of implementing the scenarios, particularly in meeting workforce needs and overcoming workforce constraints both in and out of hospital. • The corresponding impact of other services that were outside the scope of this Review – including mental health and disabilities. • Wider implications of some changes, such as the reconfiguration of hospitals and public access to safe and high quality services. • The development of clear evaluation frameworks to continuously monitor and assess the impact of reform initiatives as they are rolled out. • How additional capacity should be planned and delivered at a regional level based on population need. • Development of robust and comprehensive data systems.

Summary of findings – Forecast of Capacity in 2031

Sector	POD	Current Capacity 2016	Forecast of Capacity in 2031	
			without reforms and showing % change from 2016	with reforms and showing % change from 2016
Primary Care	GP WTEs	3,570	4,970 (+39%)	4,600 (+29%)
	Practice Nurse WTEs	1,400	1,900 (+40%)	2,600 (+89%)
	Public Health Nurse WTEs	1,500	2,200 (+46%)	2,600 (+67%)
	PHYSIO WTEs	540	740 (+38%)	840 (+58%)
	S&LT WTE	470	440 (-6%)	420 (-11%)
	OT WTE	500	660 (+32%)	760 (+50%)
Social Care (Older Persons)	Residential Care – long term Beds	26,200	36,300 (+39%)	36,700 (+39%)
	Residential Care – short term Beds	3,800	5,600 (+46%)	6,300 (+62%)
	Home Care Packages	15,600	26,600 (+70%)	34,600 (+122%)
	Intensive homecare	200	330 (+70%)	660 (+230%)
	Home help hours (millions)	10.6	17.8 (+69%)	23.1 (+118%)
Acute Care (Public Hospitals)	AMU Beds	430	590 (+37%)	430 (+0%)
	Day Case Beds	2,140	3,140 (+47%)	2,440 (+14%)
	In-Patient Beds (95%)	10,500	14,600 (+39%)	*
	In-Patient Beds (85%)	10,500	16,300 (+56%)	12,600 (+20%)
	Adult Critical Care Beds (100%)	240**	340 (+43%)	*
	Adult Critical Care Beds (80%)	240**	430 (+79%)	430 (+79%)
	Bed Totals	13,310	18,670 (95% occupancy) 20,460 (planned occupancy)	15,900

* These scenarios were only run on Planned Utilisation (lower occupancy rate) basis.
** Rounded from 237 (actual 2016 figure). Source: Critical Care Programme

2 BACKGROUND

This document is the Executive Report of an independent review undertaken by PA Consulting (PA) on behalf of the Department of Health (DoH) as part of the commitment in the Programme for a Partnership Government to undertake a national hospital bed capacity review. The intention was that this would form part of the preparations for the Government's 2017 review of the Capital Plan 2016-2021, and would inform the new 10-year National Development Plan. It would also provide a short-term focus on health service capacity and determine how capital and other investment over the coming years can be best targeted, given the current pressures being experienced across the health system.

This report sets out the approach to the development of a demand and capacity model for the DoH, and the use of this model in an analysis of health demand and capacity required for the 15 year period 2017-2031. The model and supporting documentation have been provided for the Department's ongoing use.

As with any future projection exercise, and especially one as complex as healthcare provision, it is important that all figures derived are treated as projections. It is recommended that focus be placed on an assessment of the order of change ("ballpark figure") rather than an attempt to provide exact figures. For this reason, figures have been rounded throughout the report.

Due to the volume and complexity of the work undertaken, this Executive Report has been produced, which provides a summary of the approach, findings, conclusions and recommendations of the Review. Should the reader require further information on any element of this Executive Report, they are referred to either the Main Report or its associated appendices for this detail.

2.1 Context

The Health Service Capacity Review 2017 (hereinafter referred to as the Capacity Review) was undertaken in the context (and is reflective) of a wide and developing policy landscape. There is broad consensus that the existing Irish health system, with its hospital-centric focus, is unsustainable in the face of emerging demographic and epidemiological trends. In particular, the rise in the prevalence and burden of chronic disease, growing public expectations as well as innovations in medicine and technology, all give rise to increasing demands on a system that is already under considerable strain.

In response to this unsustainability, the All-Party Oireachtas Committee on the Future of Healthcare published the Sláintecare Report in May 2017, setting out a vision and strategic plan to transform the Irish health service. The report has at its core a reorientation of health services towards primary and community based care and the development of an integrated care approach. The report also recognises capacity constraints across the system and calls for the outcomes of the Capacity Review to inform the reform programme arising from the Sláintecare Report.

Two previous acute hospital bed capacity reviews have been undertaken since 2000 (the last in 2007). Since then, there has been growing recognition that a range of factors impact upon health system capacity, and that capacity within and across different parts of the health system is highly interdependent – therefore focusing on a single aspect of the system is inappropriate. This is particularly evident in the Winter Initiative programme, which involves a comprehensive package of measures across primary care, acute hospitals and services for older persons to mitigate demand on hospital services over the winter months. In recognition of this evolving policy context, this Capacity Review has taken a broader approach than the previous reviews (of 2002 and 2007), which focused on acute bed capacity only. This review assessed the additional capacity needed in primary care as well as services within social care for older persons, to meet forecast demands and support a reorientation of care away from hospitals (where appropriate).

2.2 Scope

The Review was established to address the following four objectives contained in its Terms of Reference, as follows:

a. To determine and review current capacity, both public and private, in the health system and benchmark with international comparators.

b. To determine drivers of future demand and estimate impact on capacity requirements to 2031.

c. To consider and analyse how key reforms to the model of care will impact on future capacity requirements across the system.

d. To provide an overall assessment, including prioritisation and sequencing, of future capacity requirements on a phased basis for the period 2017 – 2031 at a national and regional level, cognisant of resource availability.

This report sets out two ends of a spectrum of **potential** capacity outcomes, namely:

- Scaling the current system, assuming no change to configuration, utilisation or efficiency to meet forecast needs.
- Accelerating the pace of reform and investment in alternative models of integrated care, reflecting wider international trends in healthcare provision as well as existing and emerging Irish health policies and strategies, in particular health and well-being initiatives and enhanced community-based care provision, in tandem with productivity measures.

Given the timeframe, it was not possible for the Review to examine all aspects of the health and social care system. In particular, mental health and disability services were not considered as part of the analysis, as there are significant policy development processes underway in these areas. Other areas not considered included some elements of primary care, palliative care and the ambulance service. Finally, in general, workforce capacity has not been considered except in primary care.

The analysis forecasts the capacity needed to meet future demand and has not examined the costs or strategic case for additional capacity requirements. In all instances the review identifies additional capacity needs in comparison to current capacity and does not take into consideration any implications for the replacement or upgrading of existing stock (infrastructure, equipment and resources).

2.3 Guiding the Review

The review was commissioned by the Department of Health. It was overseen and guided by the following governance mechanisms and engagement activities:

- A Steering Group met periodically throughout the review to oversee its development. The membership included senior officials from the Department of Health, Department of the Taoiseach and the Health Service Executive (HSE), as well as experts with a clinical and academic background.
- An independent International Peer Review Group was established by the Department to provide advice on and validate the methodology and approach.
- Two sets of stakeholders workshops were conducted with over 50 participants from across the health system. These drew on a range of experiences from different sectors, professional groups and patient interests:
  - The first workshops tested baseline assumptions and identified potential areas for consideration as alternative scenarios for the future system.
  - The second set of workshops reviewed in detail the potential future scenarios to validate the hypothesis for each scenario and identify potential evidence to support the assessment of impact.
- A number of stakeholders within the system were engaged through bilateral meetings to gather more detailed perspectives.
- A public consultation exercise was undertaken by the Department, involving a call for submissions from interested stakeholders.

3 METHODOLOGY – APPROACH TO FORECASTING DEMAND AND CAPACITY

The analysis was undertaken using a purposely designed demand and capacity model. This involved drawing on a range of data sources to develop forecasts in two distinct stages:
(i) establishing demand, and then (ii) assessing capacity implications. 2016 has been used as the base year and projections were developed for the period 2017 – 2031.

The **demand forecast** approach, illustrated in Table 1, is based on an analysis of recent historic annual activity and, where possible, unmet demand depending on the availability and consistency of data. Using CSO reports and forecasts for the population, measures of demographic and non-demographic growth have been defined for the forecast of future demand. Where appropriate, non-demographic growth has been adjusted to take account of known policy impacts. Unmet demand (where applicable) has been based on the annual change in the length of waiting lists, and the final demand forecast is further adjusted to accommodate the clearance of the backlog of demand held on waiting lists.

Table 1: Model Approach: Generation of Demand Forecast

Stage	Action	Description
1	Identify Annual Demand for period 2012 – 2016	Annual demand is comprised of two elements – reported annual activity in a given year and unmet demand. For the purposes of the review, waiting list data have been used as a proxy for unmet demand and it has been calculated as the annual year-on-year change in the size of the waiting list. Given data availability, a more solid assessment of unmet need was not possible but it has to some extent been addressed in the reform scenarios. Data was analysed at the lowest level of disaggregation possible by age, sex, specialty group and region (CHO/HG). Activity data was drawn from sources such as HIPE, HSE, NHSS and surveys, while waiting data list was drawn from NTPF and HSE.
2	Project Future Demand for period 2017 – 2031	2016 is taken as the base year and projections are made for each year for the period 2017 – 2031 taking into consideration demographic and non-demographic factors:
2a	Demographic Factors	Future demand for healthcare services will be impacted by changes in the size and structure of the population. Demand was forecast forward on the basis of national population projections. CSO regional projections were used (M2F2 scenario), adjusted for recent CSO population data. The analysis allowed the application of demographic growth through the lens of a specific service or specialty. The impact of changes in demography will be different for each area depending on the age profile of people using the service. For example, if a service has an age profile with older patients who have a higher prevalence of need, then it will have a higher demographic pressure than a service which has an age profile with more middle aged adults.

Stage	Action	Description
2b	Non-demographic factors	Future demand will also be impacted by a variety of factors other than demographics. These include: • Epidemiological trends (e.g. prevalence of chronic diseases). • Lifestyle risk factors impacting health status (e.g. smoking, alcohol, physical inactivity). • Changes to modes of healthcare delivery (e.g. ambulatory emergency care reducing admissions from ED, shift to day case surgery). • Technological developments (e.g. new drugs or operative technologies). • Changes in the socio-economic structure of the population (education level, income, employment) and changes in people's expectations of health services. • Proportion of the population with private health insurance • Supply-induced demand (e.g. additional funding allocated to service provision). For the purposes of this review, non-demographic growth (NDG) is derived from an analysis of demand over the period 2012 – 2016. Growth in demand is compared with demographic growth for the same period to derive a value for non-demographic growth – the change in demand that cannot be explained by demographic growth. This can be positive or negative i.e. demand for a service increased at a greater or lesser rate than would be expected given the demographic changes over the period. This gives a non-demographic growth factor for 2012-2016. Future demand is projected forward on the basis of this factor. In some cases, this factor has been adjusted to take account of known discrepancies in the data, or likely changes in demand trends over the projection period. For instance, there was a sharp rise in demand for day case services from 2012 – 2016 as a result of a concerted shift from in-patient to day services. This leads to a high NDG factor. It is unlikely that growth in demand will continue at the same rate, so the NDG factor has been adjusted down based on international norms.
3	Waiting List Reduction	While the annual change in the size of the waiting list has been accommodated in the annual demand estimate, the current waiting list (end 2016) represents a backlog of additional work. The demand profile is adjusted to reduce the waiting list to zero over a period of four years. In practice, there will always be some level of waiting list within a performing health system that is seeking to balance clinical outcomes, patient experience and cost. However as the waiting list reduction is spread over a number of years in the model, using an assumption of zero enables a reasonable estimate of the additional short term demand.
4	Demand forecast	The resulting demand forecast is then used to develop the next stage – the assessment of capacity.
5	Scenario Analysis	Assumptions within the model are adjusted to generate demand forecasts for alternative scenarios. For example, adjustments to non-demographic growth are used to model improvements in public health initiatives, and movements (or substitutions) of activities between PODs are modelled to show future patient pathways under revised models of care.

Capacity forecasts for each of the sectors have been developed following the approach summarised in Table 2.

Table 2: Model Approach: Generation of Capacity Forecast

Stage	Title	Description
1	Demand forecast	The starting point is the baseline forecast of future levels of demand.
2	Resource usage	The average length of time using a resource was identified, this is typically in terms of a length of stay, or duration of appointment. Resources represent the building blocks of capacity, and in most cases relate directly to a POD (see table below). Resource usage measures were drawn from HIPE (for patient bed days), and published reports and stakeholder consultation (for typical appointment lengths).
3	Resource availability	The annual availability of a resource was identified. This takes account of days of operation, opening hours, staff working hours. These metrics were drawn from published reports and stakeholder consultation.
4	Resource utilisation	The proportion of resource time available for direct patient contact was identified. This will include the occupancy rate for beds, and patient-facing time for clinicians. These metrics were drawn from a combination of analysis (for bed occupancy) and published reports and stakeholder consultation (for patient contact time)
5	Capacity forecast	Projected demand for each year combined with metrics for resource usage, availability and utilisation give annual capacity forecasts.
6	Scenario analysis	Assumptions within the model are adjusted to generate forecasts of capacity for alternative scenarios. For example, adjustments to resource usage and availability reflect changes in productivity, and the impact of improved occupancy rates can be assessed by adjusted resource utilisation.

The Points of Delivery (POD) and the resources modelled in the capacity review are set out by sector in Table 3 below.

Table 3: Model Dimensions

Acute Care Sector Dimensions		
Specialty	**Point of Delivery (PODs)**	**Resources**
Medical Paediatrics Surgical Maternity Other	Emergency Department (ED) attendance AMU / AMAU / MAU Inpatient Elective Inpatient Non-Elective Day Case Adult Critical Care Outpatient appointment (First Appointment) Outpatient appointment (Follow Up)	AMU/AMAU bed Inpatient bed Day Case bed Adult Critical Care (ACC) bed (see footnotes 2 and 3)

Primary Care Sector Dimensions		
Specialty	**Points of Delivery (POD)**	**Resources**
All	GP visits GP Practice Nurse visits Public Health Nursing visits 3 categories of Allied Health Professionals: Physiotherapists, Speech & Language Therapists and Occupational Therapists	GP WTEs GP Practice Nurse WTEs Public Health Nurse WTEs Allied Health Professionals: Physiotherapists, Speech & Language Therapists and Occupational Therapists WTEs

Social Care Services for Older Persons Care Sector Dimensions		
Specialty	**Points of Delivery (POD)**	**Resources**
Older people (over 65)	Residential Care Long Term Residential Care Short Term Home Care Intensive Home Care Home Help	Residential Care Long Term Beds Residential Care Short Term Beds Home Care Packages Intensive Home Care Packages Home Help Hours

Hospital capacity derives from the combination of a range of resources, including beds, operating theatres, diagnostic modalities (e.g. CT scanners, laboratories) and workforce.

[2] For the purposes of this Review, acute beds were analysed on the basis of "beds available", rather than beds occupied or bed capacity. The OECD's widely-applied definition of bed availability is: "An available bed is a bed which is immediately available to be used by an admitted patient or resident if required. A bed is immediately available for use if it is located in a suitable place for care and where nursing and auxiliary staff are available, either immediately or within a reasonable period." [https://stats.oecd.org/glossary/search.asp]

[3] In the case of ED and Outpatients, the capacity review only considered demand projections and did not quantify the capacity implications of projected demand as the appropriate unit of capacity is difficult to define.

A complete assessment of future capacity needs would need to take account of the complex interactions between these components – this was not possible within the scope of this national-level Capacity Review.
Furthermore, the data made available on operating theatres and diagnostic modalities during the course of the Capacity Review were insufficient to enable any level of analysis of capacity needs in these areas . As a result, further detailed planning would be required to develop the detailed scope of any additional hospital capacity recommended by this review. For operating theatres, the view is that rolling theatre closures are routine and that the capacity is currently driven by the availability of hospital beds of all types (critical care, inpatient, day case) as well the health workforce needed to operate the service.

The model was then used to develop two main outputs:

- **Baseline Projection.** This is the "status quo" scenario. It provides an assessment of future capacity requirements across the system should no further changes or improvements be made. It also assumes that as demand increases the current patterns of activity continue, and it assesses the capacity needed given the same levels of resource availability and utilisation. This is discussed in detail in Section 4.2 of this report.
- **Impact of Future Policy Reforms.** The future policy scenarios are based on an analysis of current policy, known healthcare system deficiencies, and international practice. Included in this is the feedback from engagements with stakeholders, a public consultation process, the Steering Group and the International Peer Review Group. A number of policy scenarios have been modelled to reflect potential changes that impact upon both demand and how that demand is addressed across the system. These are:

Reform Scenario	Description
1	Improved Health and Wellbeing
2	Improved model of care centred around comprehensive community-based services
3	Enhanced hospital productivity. This has been assessed in two parts: • 3A Hospital Group / National Care Pathway Improvements • 3B Improvements to Patient Flow Through Hospitals

This approach has been taken to demonstrate the **potential** impact on capacity of broad reaching initiatives and reforms. The scenarios take account, and are reflective of, the recommendations made within the Sláintecare report.

The key findings from the analysis are detailed in the following sections which set out:

- **Section 4:** The impact of demographic and non-demographic growth on demand.
- **Section 4.2:** Baseline capacity forecasts.
- **Section 5:** The Need for and Impact of Reform – including the three scenarios
- **Section 6:** Combined Impact of Reform
- **Section 7:** Key Findings and Recommendations

Note regarding data quality, limitations, assumptions and the use of rounded point estimates: Any review of this nature has its limitations and conclusions drawn must be interpreted and considered in the context of these limitations. Projections in the report represent the potential levels of future demand and capacity, and include rounded point estimates. There is a plausible range within which these points sit, based on uncertainty about the future, various data issues and choices regarding assumptions and parameter setting. As with all forecasts, there will remain assumptions that will need to be tested through careful evaluation of performance and outcomes as any improvements or reforms are implemented.

Some of the more significant limitations include:

- Lack of comprehensive and disaggregated data in primary and community care, and some areas of public acute hospitals such as outpatient activity and theatre usage.
- Limited access to activity data for general practice and private hospitals.
- Robustness of data to enable trend analysis to determine non-demographic growth factors. Five years of activity was analysed where available, but in some cases a shorter period had to be used due to data issues. The absence of private hospital activity trends also impacts on the robustness of trend analysis for hospital activity.
- It is not possible to predict the capacity impact of policy and productivity reforms with any real certainty. The approach has drawn on international and national evidence in as far as possible, and provides valuable guidance on what the potential impact of these measures could be.
- Only one population projection scenario was used (CSO M2F2). Divergence from these forecasts will impact health care demand.

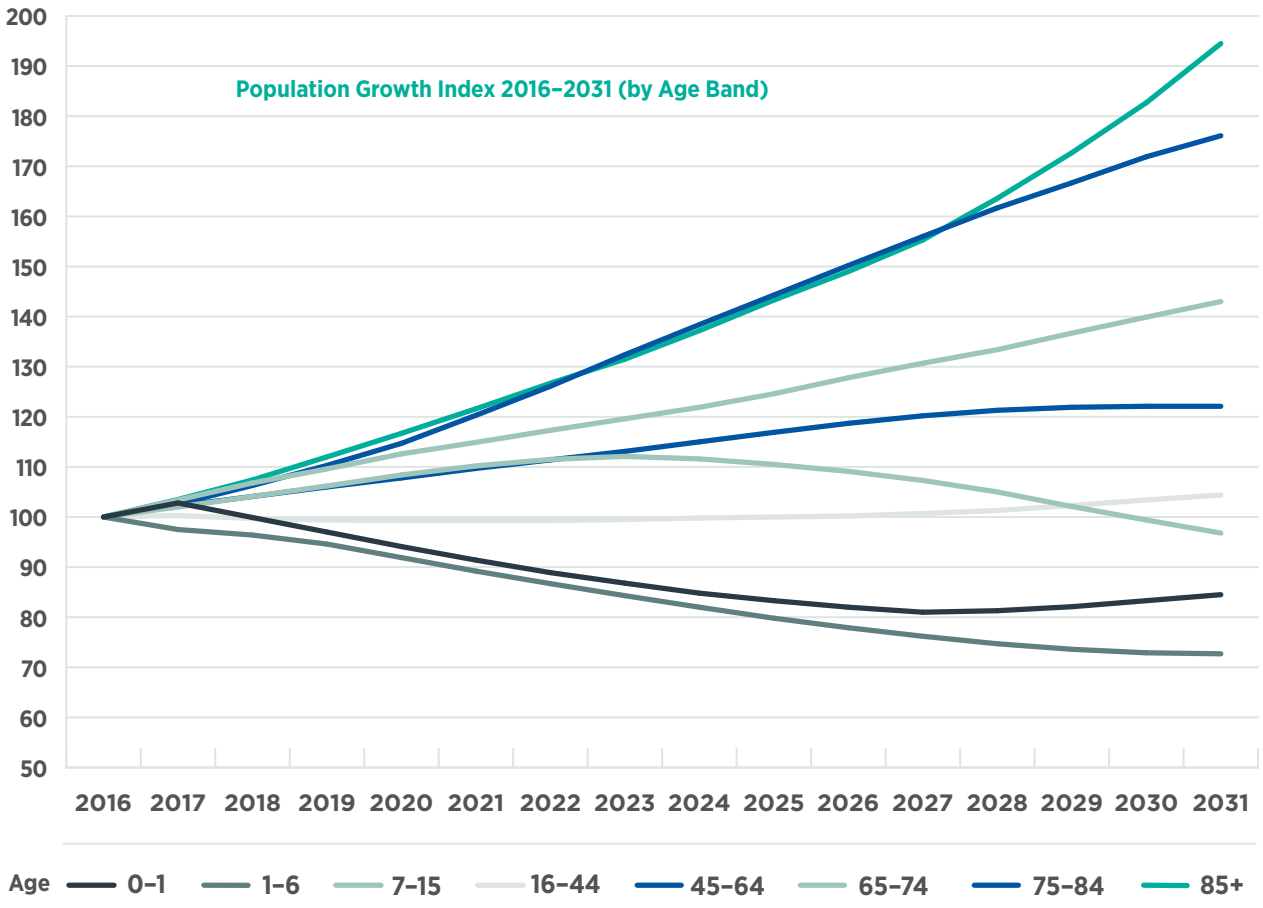
4 BASELINE "STATUS QUO" SCENARIO – IMPACT OF DEMOGRAPHIC AND NON-DEMOGRAPHIC GROWTH ON DEMAND

4.1 The population in Ireland is forecast to rise with a sharp increase in the over 65s who are high users of health services

The CSO (M2F2scenario) forecasts that the population will grow by 12% over the period 2017-2031[4]. Within this, there is a sharp rise in both absolute numbers and proportion of the population in the older age groups. These age groups are more intensive users of health and social care services. For example, in 2016 even though they represented only 13% of the population, 40% of people who had a day case procedure were over the age of 65. Within older person services, those aged 85 and over represented 40-50% of those receiving care. This means that the increases in these age cohorts will greatly compound the impacts on demand, i.e. not just have additive impacts on demand.

This is illustrated in Figure 1 and the following tables. This demographic change is typical across most developed economies, but in the case of Ireland, this phase of ageing is relatively new and will intensify over the next decade. In contrast, the population under 16 is set to decline. The age bands in Figure 1 are those used in this Capacity Review to forecast growth in demand.

Figure 1: Forecast population of Ireland and relative growth to 2031 by age band (relative to 100% in 2016



[4] The forecast is based on a 2016 baseline position and an annual uplift on that position. The 2016 baseline position – from CSO – is Nuts3_SYOA_April11_17, which is the 5 year historical view based on the 2011 census and 2016 census. The uplift is based upon the CSO 2017-2031 regional population projection (M2F2) which is based on the 2011 census data. (This forecast will be updated with 2016 census data during 2018.)

Table 4: Current and forecasted age structure of the Irish population

Age Band	Current and Forecast Population Count of Ireland (1000s)					
	2016	2021	2026	2031	Change 2031 +/- (1000s)	% Change 2031
0-1	62	57	51	53	-9	-14.5%
1-6	414	369	322	301	-113	-27.3%
7-15	590	650	644	571	-19	-3.2%
16-44	1,915	1,901	1,919	1,999	84	4.4%
45-64	1,128	1,237	1,339	1,377	249	22.1%
65-74	1,128	1,237	1,339	1,377	249	22.1%
75-84	195	234	292	343	148	75.9%
85+	67	82	100	131	64	95.5%
Total	4,740	4,954	5,139	5,301	561	11.8%

Table 4A: Age Profile of Service Users in 2016

AGE GROUPS	ED	AMU	DAY	IP EL	IP NEL	ACC	OPFA	OPFU	GP-GP	GP-PN
0-15	22%	0%	4%	11%	14%	0%	15%	11%	10%	12%
16-64	59%	55%	57%	49%	55%	45%	65%	60%	65%	56%
65+	19%	45%	39%	39%	31%	55%	21%	28%	25%	31%

AGE GROUPS	AHP-PHY	AHP-OT	AHP-SLT	PHN	CIT	RC-LT	RC-ST	HC	IHC	HH
0-15	13%	28%	80%	9%	0%	0%	0%	0%	0%	0%
16-64	46%	23%	12%	21%	0%	5%	5%	15%	15%	15%
65+	41%	50%	8%	69%	0%	96%	96%	86%	84%	86%

It is important to acknowledge that there continues to be a debate around the impact of an ageing population on healthcare utilisation. Evidence differs around trends in health status and incidence of disease and disability. While some evidence points to an older population that is healthier than generations before it, other evidence points to an increase in risk factors and prevalence of chronic disease.

In recent years the health of the population in Ireland has improved, with life expectancy comparable to the rest of Europe, and decreasing mortality rates, for example infant mortality, cancer death rates, and circulatory system related mortality. The impact of these changes on health care utilisation is not fully known. For the purposes of the Capacity Review, trends in utilisation over the recent period have been used as a means of estimating this and other non-demographic impacts.

Taking account of both demographic and non-demographic trends, if no further policy reforms are implemented, the demand for health services is forecast to increase as follows:

Table 5: Demand Forecast: Baseline

Type	Forecast	Change 2016-2031
GP appointments	Demand is forecast to rise from approximately 18.9 million to over 26.2 million visits per year. This assumes no changes in eligibility arrangements for the Medical Card and GP Visit card.	39%
GP Practice Nurse appointments	Demand is forecast to rise from approximately 6.8 million to over 9.5 million visits per year. This assumes no changes in eligibility and takes no account of a possible increased role for practice nurses.	40%
Public Health Nursing appointments	Demand is forecast to rise by 46%. This is based on current public health nursing arrangements and its service structure. It does not take account of recent developments to enhance community nursing and a possible increased role in the management of chronic disease and care of older people in the community.	46%
Allied Health Professionals (AHPs – PHY, OT, S&LT – in Primary Care setting)	Demand is forecast to rise for: Physiotherapist (PHY) visits by 38%; Occupational Therapist (OT) visits by 32%. Speech & Language Therapists (S&LT) visits are projected to reduce slightly by 6% in line with demographics. These projections are based on the current service structure and eligibility arrangements. They take no account of changing requirements. This is particularly true for speech and language services which are predominately targeted at children at present.	38% (PHY) 32% (OT) -6% (S&LT)
Residential Care Long Term	Demand is forecast to rise from approximately 24,600 to 34,200 residents. The forecast assumes that there will be some continuation of the trend relating to people entering residential care later in life and a shortening of time spent in long-term beds and a shift from the use of residential care to home-based care.	39%
Residential Care Short Term	Demand is forecast to rise from approximately 3,600 to 5,200 cases per year in line with demographic pressure. This does not take account of a greater role for short term care options such as respite, step-down, and transitional care, this is addressed in scenario analysis.	46%

Type	Forecast	Change 2016-2031
Home Care Packages	Demand is forecast to rise from approximately 15,600 to 26,600 people per month. This takes account of publicly funded activity and public waiting lists only and is projected in line with demographic pressure. Unmet need, including services purchased privately, is addressed in scenario analysis.	70%
Intensive Home Care Packages	Intensive home care packages were introduced during the baseline period, 2012-2016, and are still very few in number – totalling only 200 in 2016. The baseline scenario only shows a linear projection in line with demographic changes, To make a real impact, the level of provision of intensive packages would need to increase significantly. This is considered in scenario analysis.	70%
Home Help	Demand is forecast to rise from approximately 48,000 to 82,000 people by 2031 driven by demographic pressure from older age groups. This takes account of publicly funded activity and public waiting lists only and is projected in line with demographic pressure. Unmet need is addressed in scenario analysis.	69%
ED Attendances	ED attendances are forecast to rise from approximately 1.3 million to 1.5 million attendances per year. Additional demand for urgent care is being met in AMU and minor injury clinics, this isn't captured in ED data.	16%
AMU Episodes	AMU episodes are forecast to rise from approximately 100,000 to 140,000 attendances. This is based on current service provision within AMUs which may be constrained due to pressures in EDs resulting in AMUs being used as ED overflow, The forecast has been adjusted to take into account the historical growth associated with the roll-out of the AMU programme in the period 2012-2016.	37%
Day Case Procedures	Demand for day case procedures is forecast to grow from a baseline of approximately 1.1 million to almost 1.6 million per year in 2031. A move to shift some inpatient work to day case has contributed to the recent rise in day case rates and the forecast is based on levelling out rates to align with international comparators. (Dialysis and chemotherapy patients have been retained in the day case numbers, but were excluded in international comparison to increase validity of comparisons)	47%
Inpatient Elective	Pressures from non-elective caseloads have meant that rates of inpatient procedures have been suppressed and waiting lists have grown in recent years. The forecast is based on a strong underlying demographic pressure countered by the continued reduction in inpatient elective rates. This is in part a reflection of continued improvements in processes and technology enabling a shift to day case work. Projecting forward, demand for inpatient elective appointments is expected to remain around 100,000 per year, (rising slightly from 99,000 to 101,000). However, an increase in activity in the immediate term is required to reduce the backlog of waiting lists,	3%
Inpatient Non-Elective	Demand is forecast to grow steadily from approximately 490,000 to 610,000 episodes per year driven by older age groups, and in particular the over 75s medical (rather than surgical) cohort.	24%

Type	Forecast	Change 2016-2031
Adult Critical Care	Activity levels in Adult Critical Care have remained static in recent years largely due to capacity constraints indicating unmet need. The forecast assumes that growth aligns with demographic trends (which are the highest of any POD). Demand is forecast to grow from approximately 15,600 to 22,300 episodes by 2031.	43%
Outpatient First Appointments	Demand is forecast to rise from approximately 1 million to 1.2 million appointments per year. This is driven largely by the 16-64 age groups, with a trend upwards in surgical patients.	27%
Outpatient Follow-Up Appointments	Demand is forecast to rise from 2.4 million to 3.1 million appointments per year. The trend follows the outpatient first appointment demand, with a further contribution from patients over 65 reflecting the increased prevalence of chronic conditions.	31%

Note – forecasted demand numbers have been rounded. In general, %s shown are based on unrounded numbers, but rounded to the nearest 1%.

* The analysis presented in this Report relates to public hospitals only. Analysis was also undertaken on demand for private hospital services (within data constraints) and this is presented in the Main Report.

4.2 Baseline Scenario: Capacity implications if the status quo continues

The baseline scenario assumes current patterns of activity continue as well as the same levels of resource availability and utilisation. The capacity needed to meet forecasted demand is calculated using data and/or assumptions around current resource usage, availability and utilisation. Implicit in this is a continuation of current occupancy levels (this is addressed in section 4.3). The forecast also includes the capacity to meet currently unmet demand calculated as a reduction in waiting lists over a four year period to 2021.

As shown in the table below, the forecasted increase in demand translates into a sharp rise in the capacity required across all sectors of health and all PODs.

Table 6: Summary of Forecast Capacity by Sector Point of Delivery (POD) with percentage changes from baseline

Sector	POD	2016	2021	% Δ	2026	% Δ	2031	% Δ
	GP WTEs	3,570	3,990	12%	4,460	25%	4,970	39%
	PN WTEs	1,400	1,500	12%	1,700	26%	1,900	40%
	PHN WTEs	1,500	1,800	14%	2,000	29%	2,200	46%
	AHP–PHY WTEs	540	610	14%	670	24%	740	38%
	AHP–OT WTEs	500	570	13%	610	21%	660	32%
	AHP–S&LT WTEs	470	480	2%	450	-4%	440	-6%
	RC LT Beds	26,200	28,900	10%	32,200	23%	36,300	39%
	RC ST Beds	3,800	4,300	12%	4,900	28%	5,600	46%
	HCP	15,600	19,000	22%	22,100	42%	26,600	70%
	IHCP	200	230	18%	280	41%	330	70%
	HHH (million)	10.6	12.5	19%	14.8	40%	17.8	69%
	AMU Beds	430	470	11%	530	24%	590	37%
	Day Case Beds	2,140	2,550	19%	2,820	32%	3,140	47%
	IP Beds	10,500	11,700	12%	13,000	24%	14,600	39%
	ACC Beds	240*	270	13%	300	29%	340	43%

*Rounded from 237 (actual 2016 figure). Source: Critical Care Programme

As acknowledged at the outset in this report, this assessment of future capacity requirement is not a full capacity plan. It does not take account of investments needed to upgrade or replace current capacity (e.g. outdated estate, equipment, retirement of staff, etc.). The profile follows the forecast of demand, and does not take account of the feasibility of providing additional capacity, in particular the lead times that would be involved in bringing a major uplift in hospital capacity into service or the lead time required to recruit and train additional staff.

4.3 Known pressures means that the system is operating above internationally accepted levels of bed occupancy

While capacity constraints are reported across most aspects of the system, problems are especially persistent in the acute hospital system. Increasing numbers of patients are reported to be spending extended times on trolleys waiting for beds, and bed occupancy is running at around 95% and in a number of cases individual hospitals are running at close to 100%.

International evidence indicates that high bed occupancy is associated with a number of adverse factors including increased risk of healthcare associated infections such as MRSA, increased mortality, increased probability of an adverse event, risks to staff welfare.

At an operational level, high occupancy restricts efficiency in patient flow. Put simply, it is difficult to be efficient when operating at or near maximum occupancy. This is true for any sector. It can lead to longer lengths of stay and cancelled elective care. Therefore, reducing average bed occupancy will be a key enabler for the hospital level productivity improvements in Scenarios 2 and 3.

An adjustment to the baseline has been modelled to highlight the immediate and ongoing need for additional hospital capacity to address potentially unsafe occupancy levels and is based on two adjustments:

- Reducing inpatient bed occupancy levels from 95% to international norm of approx 85%[5].
- Reducing adult critical care bed occupancy from 100% to 80%[6].

The impact on the baseline for inpatient and adult critical care is set out in the table below (termed planned occupancy) and shows a notional figure of additional beds required in 2016 and projected figure for 2031. The adjusted baseline is used in the scenarios that follow.

Table 7: Acute Baseline Capacity at Current and Planned Bed Occupancy Rates

Year	Baseline Adjustment for Bed Occupancy			
	2016 at current occupancy	2016 (notional) Bed Numbers at Planned Occupancy	2031 at current occupancy	2031 at Planned Occupancy
Inpatient (IP) Beds	10,500	11,700	14,600	16,300
Adult Critical Care (ACC) Beds	240*	290	340	430

*Rounded from 237 (actual 2016 figure). Source: Critical Care Programme

On its own, an uplift in bed capacity is unlikely to offer a sustainable improvement in bed occupancy, as additional beds are likely to be filled immediately with unmet demand. There will be a need for a sustained focus on other aspects of the system affecting patient flow, including hospital level incentives to maximise flow as well improving capacity out of hospitals through the type of measures implemented in the winter initiative programme. In practice, short term improvements in bed occupancy rates are likely to be achieved with a mix of additional hospital beds, residential care and homecare packages along with management measures to improve patient flow, and should be phased in over a number of years

[5] Noting that a further adjustment to this is made for elective inpatients in Scenario 3A.
[6] As used for "Review Of Adult Critical Care Services In The Republic Of Ireland", Prospectus, Sept 2009

5

NEED FOR REFORM – CONTINUATION OF THE CURRENT MODEL OF CARE IS NEITHER SUSTAINABLE NOR APPROPRIATE

There is general consensus that our health service and the current model of care are not fit for purpose. It developed at a time when episodic care was the norm and communicable diseases accounted for a large proportion of healthcare demand. The system and infrastructure was shaped around delivering this kind of care, resulting in a very hospital-centred system and a fragmentation and underdevelopment of community based services. The health system is now faced with an increasing population posing the very different challenges presented by ageing along with an increasing burden from non-communicable, mainly lifestyle related, diseases. There is no option but to reform.

There is also broad consensus that scaling the current system, as implied in the baseline scenario, is neither desirable nor likely to be feasible. Even if a massive investment in facilities were affordable, other constraints such as workforce would mean that the intended benefits – improved patient experience and outcomes – would prove elusive.

The Sláintecare report has set out an agreed vision and strategic plan to transform the Irish health service that involves the development of a more integrated health service, centred on a comprehensive community-based care model. This is a continuation but an acceleration of the direction of travel that has been set for the Irish health system over recent years, and in particular the need to shift the focus from treatment to prevention and early intervention outlined previously in both the Future Health (2012) and Healthy Ireland (2013) strategies. Sláintecare represents a commitment to healthcare reform that is unprecedented in the history of the State.

This section sets out an analysis of scenarios for future capacity needs that takes account of the potential impact of additional reforms to the system. The scenarios have been defined in a way that applies changes to different sections of the population and care pathways so that they can be combined to provide a total potential impact. **Together, the baseline and reform scenario perspectives provide the extremes for a range of possibilities for the capacity needed within the system.**

The baseline scenario involves a continuation of the current model of care, and does imply a significant investment of resource across all care settings. Most notably, the baseline scenario is capital intensive and represents the higher end of the scale for the additional investment in hospital capacity needed. The alternative scenarios all involve shifting care out of hospitals and, in that respect, represent a best case for the level of capital investment in hospital capacity needed. The three scenarios modelled in detail are:

- The impact of improved health and wellbeing, implemented through the Healthy Ireland framework.
- The shift towards an improved model of care centred around comprehensive community based service.
- Improvements in hospital (and hospital group) productivity arising from reconfiguration of services to support increased clinical specialisation, and general productivity improvements aided in part by improved availability of out-of-hospital services.

It was not possible to examine every potential change in the health system within the scope of this Capacity Review. In defining and selecting the scenarios that would be analysed, a range of additional possibilities were considered. These included considering the impact of an enhanced palliative care service, and improved provision of community based services for the under 65s with complex needs. Full consideration of these areas was not possible within the time constraints for the Review. The implications of proposals in the Sláintecare report to remove private practice from public hospitals were also not considered. This is subject to a separate review process[7].

This section provides a profile of each of the scenarios and presents the outputs generated by the modelling of each scenario.

Modelling of scenarios involved overlaying parameter assumptions for a given scenario onto the baseline service forecasts for each POD. Details of assumptions made have been provided with the model. In the case of in-patient and adult critical care beds, the impact of reforms has only been modelled on the adjusted baseline for planned utilisation. The combined impact of the scenarios is presented in Section 6.

[7] An independent impact assessment of the removal of private practice from public hospitals was announced by the Minister in October 2017.

5.1 Reform Scenario 1: Improved Health and Wellbeing

The concept:
The scenario models the impact arising from the implementation of a broad range of health and wellbeing initiatives and policies and programmes under the *Healthy Ireland* framework. Rather than model specific impacts in different risk groups, especially where the evidence of impact is not sufficiently robust and scalable, the scenario takes a top-down approach and models a staged reduction in the non-demographic growth for both primary and acute care. While there may be an impact on social care, this was not modelled.

Figure 2: Summary of Reform Scenario 1

Sector of change:
Primary and Acute

Timeline/phasing:
Long Term, rising impact over time

Requirements include:
- Continued implementation and increased investment in *Healthy Ireland*
- Screening and brief interventions across all healthcare settings and appropriate staff training; implementation of the Making Every Contact Count (MECC) programme
- Health promotion and other initiatives, including legislation, regulation and taxation aimed at unhealthy lifestyle behaviours
- Smoking – cessation services and alcohol addiction and rehabilitation services
- Specialist services for the management of obesity
- Cardiac/pulmonary rehabilitation to patients with existing diseases
- Population based screening (eg cancer screening) and vaccination programmes

Benefits include:
- Improved health outcomes and improved wellbeing
- Reduction in population prevalence of disease risk factors such as smoking, obesity, inactivity and excess alcohol consumption
- Reduction in lifestyle related diseases and co-morbidities
- Increase in healthy life expectancy
- Reduction in use of acute hospital and acute episodic primary care services
- Improved mortality rates from lifestyle related diseases and reduction in premature years of life lost

What is already happening in Ireland:

Healthy Ireland, our national framework for improved health and wellbeing, recognises the fundamental value of health and wellbeing to individuals, communities and society as a whole and acknowledges that to achieve a healthy society where everyone can benefit, every section of society must play its part. One of its four goals aims to improve levels of health and wellbeing at all stages of a person's life, to decrease the prevalence of unhealthy behaviours that contribute to chronic disease and to increase the degree to which diseases and conditions are either prevented, or detected early to allow for successful intervention.

By adopting a life course approach to promoting health and wellbeing – focusing attention on behavioural risk factors and effective interventions at key transition points in a person's life – *Healthy Ireland* seeks to impact positively on critical health indicators. Healthy Ireland also focuses on reducing health inequalities, recognising the real societal benefits that this would deliver.

The understanding of the potential of a whole-of-government and whole-of-society approach and the political commitment and collaboration shown to date have been acknowledged in the Sláintecare report (2017). To support the implementation of *Healthy Ireland*, the HSE published *Ireland in the Health Services: a National Implementation*

Plan 2015-2017, which led to the development of seven National Policy Priority Programmes. Health and wellbeing goals are incorporated in the service planning process and the HSE clinical strategy and programmes.

Modelling the scenario:
This scenario has been modelled using the following assumptions:
1. All age cohorts have been included in the modelling of this scenario.
2. The areas that were considered to benefit most from positive lifestyle interventions are:

Acute-
- In all PODs, except Adult Critical Care (ACC), reduce non-demographic growth by -0.5% in each of the years from year 6 to year 15.

Primary-
- In all PODs, reduce non-demographic growth by -0.5% in each of the years from year 6 to year 15.

Note: the increase in need and demand for services in primary and community care were not modelled nor the need for additional capacity, e.g. longer appointment times if everyone is going to be MECC'd.

The results of the forecast for Reform Scenario 1 and the baseline are shown in Table 8. Note that only the key PODs that are impacted by the modelling of the scenario have been listed.

Table 8: Overview of POD Capacity for Baseline and Reform Scenario 1

Baseline Scenario Year	2016	2021	2026	2031	△ 2016-31
GP (WTE)	3,570	3,990	4,460	4,970	1,400
Practice Nurses (WTE)	1,400	1,500	1,700	1,900	500
Public Health Nurses (WTE)	1,500	1,800	2,000	2,200	700
AHP – PHY	540	610	670	740	200
AHP – OT	500	570	610	660	160
AHP – S&LT	470	480	450	440	-30
AMU Beds	430	470	530	590	160
Day Case Beds	2,140	2,550	2,820	3,140	1,000
IP Beds (85% Occupancy)	10,500	13,000	14,500	16,300	5,800
ED Demand	1.29m	1.35m	1.41m	1.49m	0.20m
OP – First Appt (OPFA)	0.97m	1.16m	1.14m	1.23m	0.26m
OP – Follow-Up Appt (OPFU)	2.40m	2.63m	2.88m	3.15m	0.75m

Reform Scenario 1 Improved Health and Wellbeing						
Year	**2016**	**2021**	**2026**	**2031**	**△ 2016-31**	**Sc 1 Effect**
GP (WTE)	3,570	3,990	4,350	4,730	1,160	-240 ▼
Practice Nurses (WTE)	1,400	1,500	1,700	1,800	400	-100 ▼
Public Health Nurses (WTE)	1,500	1,800	1,950	2,100	600	-100 ▼
AHP – PHY	540	610	650	700	160	-40 ▼
AHP – OT	500	570	590	630	130	-30 ▼
AHP – S&LT	470	480	440	420	-50	-20 ▼
AMU Beds	430	470	520	560	130	-30 ▼
Day Case Beds	2,140	2,550	2,750	2,980	840	-160 ▼
IP Beds (85% Occupancy)	10,500	13,100	14,200	15,500	5,000	-800 ▼
ED Demand	1.29m	1.35m	1.38m	1.41m	0.12m	-0.08m ▼
OP FA	0.97m	1.16m	1.12m	1.18m	0.21m	-0.05m ▼
OP FU	2.40m	2.63m	2.81m	3.00m	0.60m	-0.15m ▼

Enablers and Challenges to implementing this scenario:

Key whole-of-government actions and enablers range from legislative interventions and other actions with a specific focus on health outcomes such as tax on sugar sweetened beverages, minimum unit pricing for alcohol, plain packaging for cigarettes; and others such as educational curricula and active transport which have a focus on educational attainment and infrastructure as primary outcomes but positive health outcomes may ensue.

Structural and implementation enablers include:

- The *Healthy Ireland* Network and the Healthy Cities and Counties Network.
- Full implementation of the Making Every Contact Count (MECC) programme, with health professionals using their routine consultations to empower and support people to make and sustain healthier choices.
- Wide breadth of staff trained to deliver screening and brief healthcare interventions across all settings.
- The HSE National Priority Programmes addressing:
  - Healthy Childhood; Healthy Eating and Active Living.
  - Alcohol consumption.
  - Tobacco use.
  - Sexual Health and Crisis Pregnancy.
  - Positive Ageing.
  - HSE Staff Health and Wellbeing.
- The National Screening Service (NSS), (BreastCheck, CervicalCheck, BowelScreen, Diabetic RetinaScreen) and the National Immunisation Programme.
- The services provided by the HSE's Public Health Departments and the Environmental Health Service

The **challenges** to implementing these programmes and initiatives include:

- sufficient and sustained focus on the broader health determinants across government and other relevant sectors and agencies.
- equitable access to prevention and treatment services.
- capacity in primary care services.
- adequate number of appropriately trained staff and multidisciplinary teams.
- enactment of relevant legislative enablers e.g. the Public Health (Alcohol Bill) 2015 and introduction of other measures such as tobacco taxation and spatial planning.
- awareness amongst the general population of the importance of health and wellbeing, participation in preventative services and the need for individual responsibility.

Evidence Summary:

Some of the key evidence sources include (further detail provided in the Main Report) :

- a range of policy documents published under the *Healthy Ireland* umbrella, such as Tobacco Free Ireland, Get Ireland Active!, the National Physical Activity Plan, and A Healthy Weight for Ireland, the Obesity Policy and Action Plan.
- Better Outcomes Brighter Futures the Policy Framework for Improved Outcomes for Children and Young People.
- the National Cancer Strategy 2017-2026. The proportion of cancer incidence attributable to modifiable lifestyle and environmental factors is estimated to be in the 30% to 40% range.
- The National Dementia Strategy addresses the modifiable lifestyle and cardiovascular risk factors which can beneficially impact on risk and time of onset of dementia.
- The National Maternity Strategy 2016-2026: Creating a Better Future Together has identified how the maternity services can support behaviour change, in particular around reducing harmful lifestyle behaviours.
- The Wanless Report in 2002 in England stressed the possible benefits of increased investment in health promotion and disease prevention.

5.2 Reform Scenario 2: Improved Model of Care Centred around Comprehensive Community-Based Services

The concept:

This scenario considers the combined impact of a range of reforms aimed at improving the model of care. It is focused on the cohort of patients whose care needs are chronic and complex, and who would most benefit from an integrated model of care. This involves proactive care planning and shifting the focus of care provision to out-of-hospital settings.

This scenario aims to take a holistic view of care that can be provided to a distinct demographic. There are many patient groups to whom this may apply. It was decided to focus this scenario on the over 65 population given the high level of utilisation of healthcare services by this population. It considers the following:

- Increase in proactive management of chronic diseases in general practice
- Increase in provision of homecare, short term respite and step down care, and other community based services such as CITs and public health nursing
- Introduction of cohorted wards for older people in hospitals and comprehensive geriatric assessments

Figure 3: Summary of Reform Scenario 2

Sector of change:
Cross system

Timeline/phasing:
Medium Term

Required Initiatives:

- Coherent reform strategy to enable a sustained shift in model of care
- Development of and investment in comprehensive and integrated community based services
- Greater role for General Practice and community nursing in chronic disease management
- Enhanced provision of timely homecare, short term residential care, AHPs and hospital at home type services (CIT, OPAT)
- National adoption of ambulatory emergency care model
- Increased use and coverage of comprehensive geriatric assessments
- Improved access to specialist wards for older people and cohorted wards
- Development of community based diagnostic facilities

Benefits:

- More appropriate care, closer to home
- Better experience for patients
- Reduction in ambulance call outs
- Reduction in ED attendances
- Reduction in emergency admissions
- Reduction in LOS
- Reduction in delayed discharges.

What is already happening in Ireland:

The move to an integrated model of care focused on meeting the needs of people with chronic conditions and co-morbidities has been a core part of health policy in Ireland for some years, and has been reaffirmed by the recommendations of the Sláintecare Report:

- Integrated models of care were one of the four pillars of the 2012 Future Health strategy and have been carried forward into the development of strategies for Primary Care and Services for Older Persons.
- The HSE's National Clinical Programmes include a set of four integrated care programmes, including one on older people and another on prevention/management of chronic disease.
- The Emergency Medicine (EMP), Acute Medicine, and Surgery National Clinical Programmes have been developing new joint models of care for the acute floor, which would incorporate interventions such as Rapid Assessment and Treatment and Ambulatory Emergency Care targeted at reducing admissions and improving patient flow.
- The National Clinical Programme for Older People has supported proposals for the introduction of a Comprehensive Geriatric Assessment, and validated the anticipated benefits from this approach in respect of proposals implemented in Tallaght Hospital.
- The Department is developing proposals on the future funding and regulation of home care.
- The Sláintecare report urges the development of a more integrated health service, centred on a comprehensive community-based care model and provides the framework within which health services should develop over the coming decade.

Modelling the scenario:
For the purposes of the Capacity Review, modelling of this scenario was confined to the 65+ age cohort. This group represents 13% of the population but accounts for approximately one third of recorded healthcare activity at present. By 2031, this cohort is expected to grow to 19% of the population and is anticipated to account for approximately one half (50%) of all healthcare activity.

This scenario has been modelled using the following assumptions:

1. Development of a Comprehensive Primary and Community Care Service (based on bringing capacity across the system up to the level available in the CHO with highest levels of activity per head of population (adjusted for significant outliers) by:
   - More proactive management of chronic disease in General Practice (this includes a 30% increase in Practice Nurse activity, 2 scheduled GP appointments per year (risk stratified by age cohort), and a shift in some activity from GP to nurse)
   - 20% Increase in Public Health Nurse activity
   - 30% increase in Home Care
   - 20% Increase in Short term residential care
   - 30% increase in CIT services
2. Based on international evidence of the impact of the development of comprehensive community care services for older age cohorts, the following assumptions have been made:
   - 15% reduction in ED admissions and Medical NEL admissions (for over 65s).
   - 5% reduction in medical EL admissions (for over 65s)
3. Introduction of cohorted wards for older people via:
   - Cohorting older people on dedicated wards with enhanced staffing (Note that the associated hospital workforce requirements are not modelled).
   - Reduce LOS for 65–74 age cohort and 75+ age cohort to the national median for each hospital group (max 20% reduction); assume 5% further reduction in LOS for any HG already at median.
4. The baseline scenario for long-term residential care assumes a continuation of the trend of people entering care at later ages and shorter lengths of stay as a result of a continued move to alternative care models like homecare and telecare. No adjustments have been made to long-term residential care demand in the reform scenario over and above the trend projected in the baseline scenario.

The results of the forecast for Reform Scenario 2 and the baseline are shown in Table 9. Note that only the key PODs impacted by the modelling of the scenario have been listed.

Table 9: Overview of POD Capacity for Baseline and Reform Scenario 2

Baseline Scenario					
Year	**2016**	**2021**	**2026**	**2031**	**Δ 2016-31**
GP (WTE)	3,570	3,990	4,460	4,970	1,400
Practice Nurses (WTE)	1,400	1,500	1,700	1,900	500
Public Health Nurses (WTE)	1,500	1,800	2,000	2,200	700
AHP – PHY	540	610	670	740	200
AHP – OT	500	570	610	660	160
Residential Care ST Beds	3,800	4,300	4,900	5,600	1,800
HCPs (per month)	15,600	19,000	22,100	26,600	11,000
HH Hours-public (millions p.y.)	10.6m	12.5m	14.8m	17.8m	7.2m
IP Beds (85% Occupancy)	10,500	13,000	14,500	16,300	5,800
ED Demand	1.29m	1.35m	1.41m	1.49m	0.20m

Reform Scenario 2 Improved Management of Patients with Complex Comorbidities						
Year	**2016**	**2021**	**2026**	**2031**	**Δ 2016-31**	**Sc 1 Effect**
GP (WTE)	3,570	3,930	4,320	4,820	1,250	-150 ▼
Practice Nurses (WTE)	1,400	1,900	2,400	2,700	1,300	+800 ▲
Public Health Nurses (WTE)	1,500	1,900	2,300	2,600	1,100	+400 ▲
AHP – PHY	540	650	750	830	290	+90 ▲
AHP – OT	500	600	690	750	250	+90 ▲
Residential Care ST Beds	3,800	4,500	5,400	6,200	2,400	+600 ▲
HCPs (per month)	15,600	21,500	28,000	33,800	18,200	+7,200 ▲
HH Hours-public (millions p.y.)	10.6m	14.1m	18.8m	22.6m	12.0m	+4.8 ▲
IP Beds (85% Occupancy)	10,500	12,400	12,900	14,400	3,900	-1,900 ▼
ED Demand	1.29m	1.33m	1.36m	1.43m	0.06m	-0.06m ▼

Enablers and Challenges to implementing this scenario:

There are multiple enablers for this scenario and it is possible that some components may be phased in or implemented separately. However, the overall impact is likely to require a coordinated approach which optimises patient flow to avoid blockages that would limit the potential benefits. The key enablers for this change include:

- Investment in the redesign and implementation of integrated service provision for older people across primary care, acute hospitals and services for older persons – with a case management approach, a focus on caring for people outside of the acute setting, and providing dedicated specialist teams / wards when in hospital.
- Increasing provision of support services in the community targeted at reducing admissions; including services for older persons, community care (e.g. public health nursing, OT and physiotherapy), and wellbeing activities.
- Multi-disciplinary teams in primary care focussing on supporting patients with chronic disease.
- Increased eHealth infrastructure including the ability to share care plans, share patient records and conduct risk stratification of patients into high or low risk of developing disease or complications/progression of disease. It may also extend to include improving patient access to digital health services.
- Investment in promoting patient self-care and improving healthy behaviours, through information and education, e.g. pulmonary rehabilitation classes, expert patients programmes for diabetes.
- Increasing resources in acute wards for older people, upskilling the workforce to address the specific and comprehensive needs of older people and early identification and assessment of older patients, particularly the frail elderly.
- Enhancing social care provision to provide timely step down and home care support, including rapid response community intervention teams able to adopt a 'discharge to assess' approach to getting patients home promptly and with the right support. This will require strong links between acute and community care providers.
- As demand grows for residential care, there should be an expectation that some productivity improvements would be introduced. For long term residential care, the additional capacity is likely to involve a range of alternative service models such as sheltered housing and assisted living communities.

The scenario raises a number of potential implementation challenges:

- The scale of change envisaged will require reform across all aspects of our health services. The reform programme will need to be properly managed and financed, and front line staff will need to be supported in delivering these reforms. There will be significant impacts for workforce, both in terms of numbers, skills-mix, education and training.
- The shift of care into primary care settings will require a multi-disciplinary approach to provide a holistic services addressing complex needs, typically delivered from primary care centres that give GPs access to minor procedure rooms, diagnostic services and a range of therapies. For example co-locating podiatry, dietician and optometry services alongside GPs and specialist nurses would support a one-stop-shop approach to managing diabetes. This will require changed work practices.
- The precise impact and opportunity will vary by age/ location, especially in more remote areas.
- There are potentially significant workforce implications for the number and type of clinical staff needed in hospitals to deliver the new models of care, notably at the ED 'front door' and in cohorted older people's wards.
- Care planning and effective risk stratification are a key enabler and will be dependent on the successful introduction of national, integrated eHealth solutions.
- The impact of dementia on services may increase the challenge and need specific provision in the community where currently there is limited specialist mental health service capability.
- Progress may be difficult to identify, as improvements may be dwarfed by a backdrop of increasing demographic pressures.
- If Ireland is to follow other international health systems that aspire to address the same issues through models such as accountable care[8] and the primary care home[9], there will be a significant dependence on activity based

funding to be extended beyond hospitals, and ideally to population based localities incorporating acute, GP and community care services.

- The ability to recruit and retain staff in homecare services, as the economy in Ireland is returning to a full-employment, will be crucial to implementation.
- The continued reliance on family informal carers cannot be guaranteed due to declining caretaker potential, associated with demographic change, increasing labour force participation rates for women and unsustainable levels of carer burden.

Evidence Summary:

There is a broad range of international evidence to support the move to an integrated system of care. Much of the evidence points to changes in outcomes, with more limited information on the resource implications of the move. In particular there is evidence to support:

- Reduction in ED attendances and admissions by providing improved access to GPs and providing enhanced care packages to care home residents.
- Complex community-based interventions to improve physical function and maintain independent living for older people.
- Chronic disease management programmes leading to decreases in admissions, readmissions and ALOS.
- Cohorting of older people in dedicated wards leading to reduced ALOS and improved outcomes in terms of final destination on discharge (home vs residential care).
- Improved discharge planning, including 'discharge to access' leading to reduced ALOS.

5.3 Reform Scenario 3: Hospital Productivity Improvements

This scenario incorporates two related productivity improvement components, modelled separately and then combined to show the overall potential for change within the acute sector to deliver improved outcomes and more effective use of resources. The two components of this scenario are:

- **Service reconfiguration** to deliver care pathway improvements at a Hospital Group or national level. These improvements typically enable greater clinical sub-specialisation by bringing together demand from across the region/group, offering both improved outcomes and more efficient use of resources. Reconfiguration may also entail establishing elective specialist centres to enable those services to operate in isolation from the disruptive impact of non-elective demand. *[It is worth noting that a small number of elective hospitals exist currently, such as Cappagh Hospital and SIVUH; in other Model 2 hospitals such as Roscommon and Nenagh, elective care is protected given the fact that these hospitals do not have 24/7 EDs.]*
- **Improvements to enhance patient flow** through the hospital, with corresponding improvements where required in primary care services.

These may have similar outcomes but will have significantly different implications in terms of the change programme needed to deliver improvements.

[8] Accountable Care is an approach where several healthcare organisations agree to provide all health and social care for a given population with the aim of improving outcomes while reducing the total cost of care.
[9] Primary care home is an innovative approach that brings together a range of health and social care professionals to work together to provide enhanced personalised and preventative care for their local community.

5.3.1 Reform Scenario 3A: Hospital Group / National Care Pathway Improvements

The concept:
The Hospital Group / National Care Pathway Improvements scenario is focused on the potential for improvements in the acute model of care to deliver improved outcomes, quality of care and more efficient use of resources. This could involve the following:

- A move from a full range of services provided in all similar hospitals towards greater specialisation (or concentration of services), bringing together the larger caseload needed to make greater specialisation viable, while also making better use of smaller more local hospitals for low complexity / high volume elective services and stepdown. It will also involve greater collaboration and coordination at the hospital-community interface of the care pathway. Typically, it will involve a clinical network that spans a hospital group or larger region. It is important to note that the main driver for change is patient safety and quality of care, but benefit may also be had in terms of using current and new capacity more effectively.
- Measures to ensure a better separation of elective and non-elective activity, including the development of new stand-alone elective acute care facilities.

Figure 4: Summary of Reform Scenario 3A

Sector of change:
Acute care

Timeline/phasing:
Medium to Long Term

Required Initiatives:

- Continued implementation of Hospital Group policy
- Reconfiguration of service into networks (major trauma centres, stroke, complex surgery, cancer)
- Establishment of elective specialist centres – co-located with non-elective centres but separately managed (elective orthopaedics, ophthalmology, and oncology)
- Better use of Model 2 hospitals for low complexity / high volume elective and step-down services

Benefits:

- Improved quality outcomes, patient safety and better use of resources by strategic organisation of acute hospital capacity
- Increased efficiency through split of scheduled and unscheduled care
- Higher productivity by improved elective patient flow, isolated from the pressures created by the variations in urgent care
- Reduced waste from cancellations
- Knock-on effect of increased productivity in reducing waiting times and improving the availability of outpatient appointments

What is already happening in Ireland:

The integration of national care pathways has long been a goal of the Irish healthcare system. Integration offers the potential for improved quality in terms of clinical outcomes and patient experience, as well as greater efficiency from economies of scale. The Hospital Groups Report and the Smaller Hospitals Framework provide a clear framework for overall hospital system development. Other recent policies have also set out more specialised roles for the Model 3 & 4 hospitals – most notably, the work done to establish stroke networks and ongoing changes outlined in the recent Cancer, and Maternity Strategies. These ongoing priorities were also reflected in the Sláintecare Report which also acknowledged

the continuation of the HSE's National Clinical Programmes, including in particular stroke, trauma & orthopaedic surgery, and ophthalmology, which are progressing towards changing how care is delivered in specialist areas.

It is difficult to accurately assess the capacity implications at a national level of reconfiguration or concentration of some hospital services or the implementation of all of the policies mentioned in the previous paragraph.

Modelling the scenario:
This scenario is based on the following key changes arising from reconfiguring services into networks:

- 10% of day case surgery moving to OPD and primary care
- A resultant reduction in LOS for IP surgery due to better patient flow arising from separation of IP EL and NEL
- Capability to operate IP EL at higher occupancy rates (i.e. 90% instead of 85%)

The results of the forecast for Reform Scenario 3A and the baseline are shown in Table 10. Note that only the key PODs that are impacted by the modelling of the scenario have been listed.

Table 10: Overview of POD Capacity for Baseline and Reform Scenario 3A

Baseline Scenario					
Year	**2016**	**2021**	**2026**	**2031**	**Δ 2016-31**
GP (WTE)	3,570	3,990	4,460	4,970	1,400
Day Case Beds	2,140	2,550	2,820	3,140	1,000
IP Beds (85% Occupancy)	10,500	13,000	14,500	16,300	5,800
OP FA	0.97m	1.16m	1.14m	1.23m	0.26m
OP FU	2.40m	2.63m	2.88m	3.15m	0.75m

Reform Scenario 3A Hospital Group / National Care Pathway Improvements						
Year	**2016**	**2021**	**2026**	**2031**	**Δ 2016-31**	**3A Effect**
GP (WTE)	3,570	4,000	4,470	4,990	1,420	+20 ▲
Day Case Beds	2,140	2,520	2,760	3,080	940	-60 ▼
IP Beds (85% Occupancy)	1 0,500	12,900	14,300	16,100	5,600	-200 ▼
OP FA (demand)	0.97m	1.17m	1.16m	1.25m	0.28m	-0.02m ▼
OP FU (demand)	2.40m	2.63m	2.88m	3.15m	0.75m	+ – 0

Enablers and Challenges to implementing this scenario:

There are a number of distinct enablers for this scenario, some of which may be introduced individually or as part of a phased approach. These would require coordination and effective governance at both national and hospital group level to maximise the benefit of the changes. The key enablers for this scenario include:

- Co-operation of hospitals within Group structures to form an integrated service which optimises effectiveness and efficiency in care delivery across the Group.
- Increased specialisation, with individual hospitals focusing on specific services.
- Establishing further elective specialist centres co-located with, but separately managed to, non-elective centres, or achievement of better separation within current hospitals.
- Implementation of the recent national strategies in areas like cancer, maternity and the forthcoming policy on trauma.
- Appropriate funding incentives exist that are aligned across acute, primary and social care settings.
- Better access to diagnostics through longer opening hours, and more direct access from primary care.
- Integrated eHealth services to support sharing of patient information and enable effective transfers of care between settings.

This scenario raises the following potential challenges to its full implementation:

- There are limits to the extent that IP EL and NEL activity can be separated. Elective centres need access to a wider range of acute care services to deal with potential complications from co-morbidities. Furthermore, elective beds do provide "escalation" bed capacity during peak ED periods. Non-elective sites would lose some of the current benefit of having the flexibility to utilise elective beds to deal with pressures from the ED.
- Sites that provide undifferentiated ED services will have many specialties that need to respond to time-critical emergency presentations, for example trauma and orthopaedic surgery and interventional cardiology. Therefore to provide a safe and sustainable service there is a need for sufficient consultants to provide a viable on-call rota".
- Resistance to the relocation of certain services from sites may arise from staff, patients and the public alike and will need effective supporting analysis, a clinically-led case for change and effective communication by system leaders.
- The precise quantification of improvements will be challenging in the near term due to the current inability to effectively track where patients are being treated (in the absence of full implementation of the planned Individual Health Identifier).
- Implementation will need to take account of the seasonal variations in emergency activity and potential short-term loss of capacity during transition.
- Securing the benefits from additional capacity may prove elusive as enhanced services may reveal previously unmet needs.
- Maintaining clarity on the role of smaller hospitals and those hospitals with historic difficulties attracting staff will be particularly important.

Evidence Summary (described more fully in Main Report, chapter 7):

- Although not modelled within this Review, there is good evidence for the transfer of major trauma from hospitals to major trauma centres resulting in a reduced LOS in the major trauma centre and increased need for rehabilitation outside of the centre.
- There is evidence that dedicated elective centres can operate more efficiently and at safe higher levels of bed occupancy (90%).
- There is limited evidence available in relation to the capacity impacts of whole-hospital reconfiguration. There are good arguments on quality grounds for centralising/concentrating some hospital services or at least providing services on a more networked basis. However, this does not necessarily lead to a reduction in LOS or an impact on capacity requirements at a system level.

5.3.2 Reform Scenario 3B: Improvements to Patient Flow through Hospitals

The concept:
The patient flow improvement element of this scenario is focused on enhanced management within hospitals to deliver reductions in LOS. This could include the following:

- Patient flow and 'lean' approaches including measures such as ambulatory emergency care, day of surgery admission, improved ward management and discharge procedures.
- Improvements in elective services – operating theatre efficiency, shifting day cases to lower acuity settings and freeing up outpatient capacity by reducing the need for follow-up appointments.
- Increased throughput in day case and AMU beds.

Figure 5: Summary of Reform Scenario 3B

Sector of change: Acute care	**Timeline/phasing:** Short-Medium Term
Required Initiatives: • National adoption of ambulatory emergency care models to reduce non-elective admissions • Improved ward management – including 'Home by 11' and 'Discharge to assess' • Continue the trend for surgical inpatients to be treated on day case basis • Shift of day case procedures* to lower acuity settings – OPD and primary care • Improved management of outpatients, reducing ratio of follow-up appointments • Better throughput in day case and AMU • ** Improved operating theatre and diagnostic efficiency/throughput; reduced number of surgical patients discharged without having a procedure • More appropriate care models for patients with complex needs that result in very long LOS in acute hospitals	**Benefits:** • Reduced ED waiting times • Reduction in emergency admissions / readmissions • Reduced LOS for patients • Reduction in delayed discharges • Greater throughput across existing capacity throughout the hospital • Movement of procedures to lower-cost settings including from day case to outpatients and primary care • Improved throughput in operating theatres and diagnostic services

* Examples include removal of skin lesions, cataract removal, therapeutic phlebotomy (for haemochromatosis) and nasal endoscopy.
** Note that patient flow initiatives for theatre and diagnostics usage/throughput were not examined due to a lack of data provided within the course of the Review.

What is already happening in Ireland:

There has been a sustained focus on hospital level improvements over recent years. This has been the principal focus for the Special Delivery Unit, which has published a range of guidance related to patient flow. The HSE is currently running a pilot programme for improving patient flow, based on work in University Hospital Galway and University Hospital Limerick. There is a separate programme (OSPIP) focused on improving outpatient services. In addition, many of the National Clinical Programmes outline specific care models that contribute towards improved patient flows, such as the Surgery Programme's work to promote Day of Surgery Admission (DOSA), minimally invasive surgery techniques, and the Theatre Quality Improvement Programme ('TQIP'), building on the previous programme Productive Operating Theatres ('TPOT') to improve theatre efficiency and quality.

A common view provided by stakeholders in workshops is that many of the changes promoted by recent improvement programmes have not been sustained. The lack of funding mechanisms linked to productivity, together with constraints on workforce and facilities, are likely to have played a part. The lack of reimbursement coding for outpatient procedures contributes towards over-classification of some procedures as day cases. The expansion of activity based funding, the provision of national comparator information through systems such as NQAIS and delegation of greater responsibility for managing resources to hospital leadership are expected to improve the situation.

Modelling the scenario:
This scenario is based on the following key changes and assumptions:

(A) Improved productivity/throughput, including:
- ALOS reduced to national median LOS (maximum reduction 20% per hospital group)
- 30% improvement in day case throughput (medical and surgical) from improved management of day case services, This equates to a change from 2.0 cases per bed per day to 2.6 cases.
- 40% improvement in AMU throughput (from 0.9 to 1.6 patients/bed/day).
- Reduce OPD First Appt:Follow Up ratio to the national median, or for those already at the median, to 1st quartile performance.

(B) Operating a better model of care including:
- 20% of medical day case activity moving to OPD
- 15% reduction in IP NEL activity and 5% increase in AMU activity (from improved use of ambulatory care)
- Increase in availability of comprehensive supports in the community for long-stay hospital patients with complex needs resulting in an impact of 0.5% reduction in medical activity in acute hospitals

The results of the forecast for Reform Scenario 3B and the baseline are summarised in Table 11. Note that only the key PODs that are impacted by the modelling of the scenario have been listed.

Table 11: Overview of POD Capacity for Baseline and Reform Scenario 3B

Baseline Scenario Year	2016	2021	2026	2031	Δ 2016-31
Public Health Nurses (WTE)	1,500	1,800	2,000	2,200	700
AHP – PHY	540	610	670	740	200
AHP – OT	500	570	610	660	160
Residential Care LT Beds	26,200	28,900	32,200	36,300	10,100
Residential Care ST Beds	3,800	4,300	4,900	5,600	1,800
Home Care Packages	15,600	19,000	22,100	26,600	11,000
Intensive HCPs (per month)	200	230	280	330	130
HHH – public (millions p.y.)	10.6m	12.5m	14.8m	17.8m	7.2m
AMU Beds	430	470	530	590	160
Day Case Beds	2,140	2,550	2,820	3,140	1,000
IP Beds (85% Occupancy)	10,500	13,000	14,500	16,300	5,800
OP FA	0.97m	1.16m	1.14m	1.23m	0.26m
OP FU	2.40m	2.63m	2.88m	3.15m	0.75m

Reform Scenario 3B Improvements to Patient Flow through Hospitals						
Year	**2016**	**2021**	**2026**	**2031**	**Δ 2016-31**	**3B Effect**
Public Health Nurses (WTE)	1,500	1,800	2,100	2,300	800	+100 ▲
AHP – PHY	540	630	710	790	250	+50 ▲
AHP – OT	500	590	640	700	200	+40 ▲
Residential Care LT Beds	26,200	29,000	32,600	36,700	10,500	+400 ▲
Residential Care ST Beds	3,800	4,300	4,900	5,700	1,900	+100 ▲
Home Care Packages	15,600	19,400	22,900	27,400	11,800	+800 ▲
Intensive HCPs (per month)	200	350	550	660	460	+330 ▲
HHH – public (millions p.y.)	10.6m	12.8m	15.3m	18.3m	7.7m	+0.5 ▲
AMU Beds	430	420	410	460	30	-130 ▼
Day Case Beds	2,140	2,330	2,370	2,660	520	-480 ▼
IP Beds (85% Occupancy)	10,500	12,700	13,800	15,500	5,000	-800 ▼
OP FA	0.97m	1.19m	1.21m	1.30m	0.33m	-0.07m ▼
OP FU	2.40m	2.51m	2.61m	2.85m	0.45m	-0.30m ▼

Enablers and Challenges to implementing this scenario:

The realisation of this scenario (3B) depends heavily on multiple actions taking place, including:

- Recording in HIPE of procedures completed in outpatient settings, and expansion of activity based funding for outpatient activity.
- Introduction of incentives towards productivity via activity based and other funding models.
- Utilising relevant clinical standards and monitoring quality through appropriate systems.
- Extension of change programmes to support quality and productivity improvements: e.g. Ireland East "lean" academy, HSE integrated care programme for patient flow, productive theatre, ward initiatives.
- Longer daycase and AMU hours to facilitate throughput gains.
- Sustained focus on productivity measures and development of capabilities within hospitals.
- Better linkages between the acute care system and social care to enable quicker discharges.

This scenario has several potential implementation challenges attached:

- The extent to which complementary changes in the provision of primary care or services for older persons are needed to support improvements in the hospital.
- Continued pressure on services, such as from high occupancy rates, will impact on the capacity to design and implement change.
- Some changes will require a coordinated approach to improve models of care across multiple national clinical programmes, particularly for the acute floor.
- Lack of robust data systems for ED and outpatient activity, and lack of integration of information systems across services to fully understand patient pathways and flow.

Evidence Summary:

There is a wealth of evidence for the impact of quality improvement programs for improving clinical outcomes as well as patient flow, resulting in more productive hospitals. This includes:

- Reducing ED to IP conversion through increased use of ambulatory care.
- General reductions in LOS associated with improved clinical processes, such as more frequent consultant ward-rounds and delegated responsibilities for discharge.
- Strong evidence supporting technology enabled changes that allow some procedures to happen in a less acute setting, including moving some inpatient procedures to day case, and some day case to outpatient or community (GP) settings e.g. cystoscopy (NHS Scotland).
- There is evidence of significant unexplained variations in practice in the proportions of outpatients receiving follow-up appointments. The ratio will vary by service and complexity but ABF-type mechanisms have been associated with driving down the ratio.

6 COMBINED IMPACT OF REFORM SCENARIO

There is broad consensus that it is neither feasible nor appropriate to plan investments around the current pattern of delivery. Significant reform is needed and international evidence indicates that this should involve greater levels of investment in primary and community based care to create a responsive health system which meets needs and (reasonable) expectations to deliver health gain, and as a consequence mitigates the extent of additional acute hospital capacity needed.

The three reform scenarios examined all involve investment in care out of hospitals to reduce the use of acute care. These scenarios envisage investment in community based care services at levels over and above that of the baseline scenario. Even with this shift, there will still be a residual requirement for additional hospital capacity. Taken together, they represent a best (lowest) case for the level of capital investment in hospital capacity needed when compared to the baseline forecast.

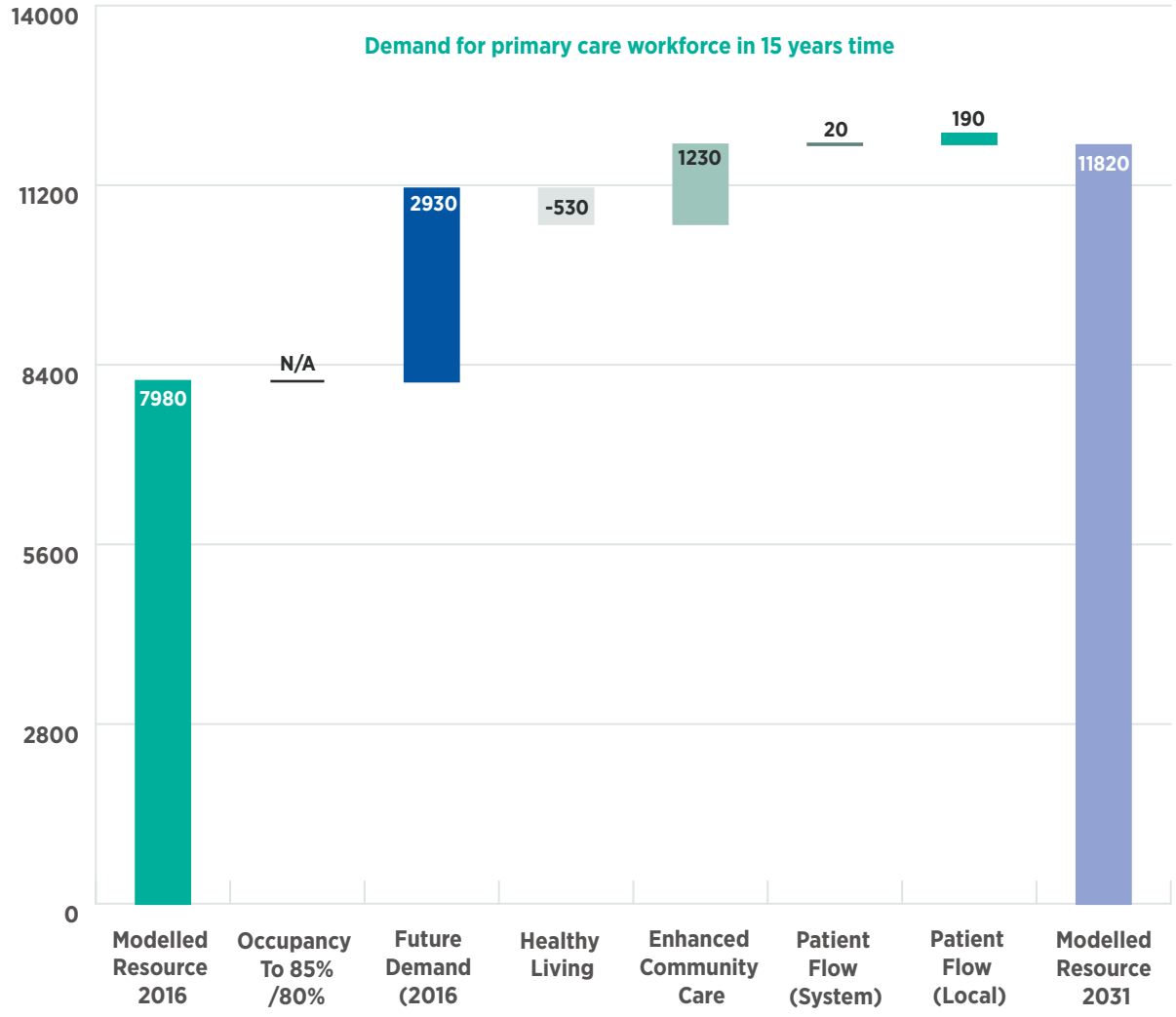
While it is not possible to predict the future with precision, if implemented in full the three packages of reforms give a good indication of the likely capacity needed across all sectors by 2031.

Realisation of this level of change will depend on successful implementation of a range of enabling reforms, likely to include workforce modernisation and a funding mechanism for the health system more closely linked to achievement of outcomes.

The following charts illustrate the capacity implications for primary care, social care services for older people and for hospital beds arising in the the three reform areas examined.

Figure 6 shows a summary of the future capacity requirements for the primary care workforce. The figures cover GPs, Practice Nurses and Public Health Nurses, and the 50% increase across the board would also be reflected in other aspects of primary care, including CITs and AHPs. Around 60% of the increase (shown as Future Demand) is due to demographic pressure which is partially reduced by the impact of improved health and wellbeing (Reform Scenario 1, shown as Healthy Living).

Figure 6: Primary Care Workforce Summary



Explanatory Note (i): Reform Scenarios 1, 2, 3A and 3B are shown in charts 6, 7 and 8 as Healthy Living, Enhanced Primary Care, Patient Flow (System) and Patient Flow (Local) respectively.

Note(ii): These "waterfall" charts should be read from left (showing baseline 2016 numbers) to right (showing projected 2031 numbers). The in-between columns serve to show the projected level of increase or decrease attributed to each scenario. The cumulative effect brings you across to the projected 2031 number.

Figure 7 presents a summary of the future capacity requirements for residential care to meet forecast growth and as a result of a reformed system. It shows the need for an additional 10,500 long term beds, which as noted earlier may be a mix of traditional residential care and alternative models. The additional demand for 2,500 short term beds includes around 600 places aimed at improving patient flow through hospitals particularly for older people with complex needs. In addition to investment in facilities, the forecast is for a rise of the order of 120% in homecare (both homecare packages and home help hours).

Figure 8 presents a summary of the future capacity requirements for acute bed stock in the public system by 2031. It shows that without any system reform, the number of beds needed within a system (operating at 85% occupancy) is likely to be in the region of 20,500 by 2031 (an increase of 7,200 over today's figures). However, should the alternative reforms as summarised above be fully implemented, then the figure could be reduced to approximately 2,590 beds.

Figure 7: Residential Care Summary (Includes : Long Term and Short Term Residential Beds)

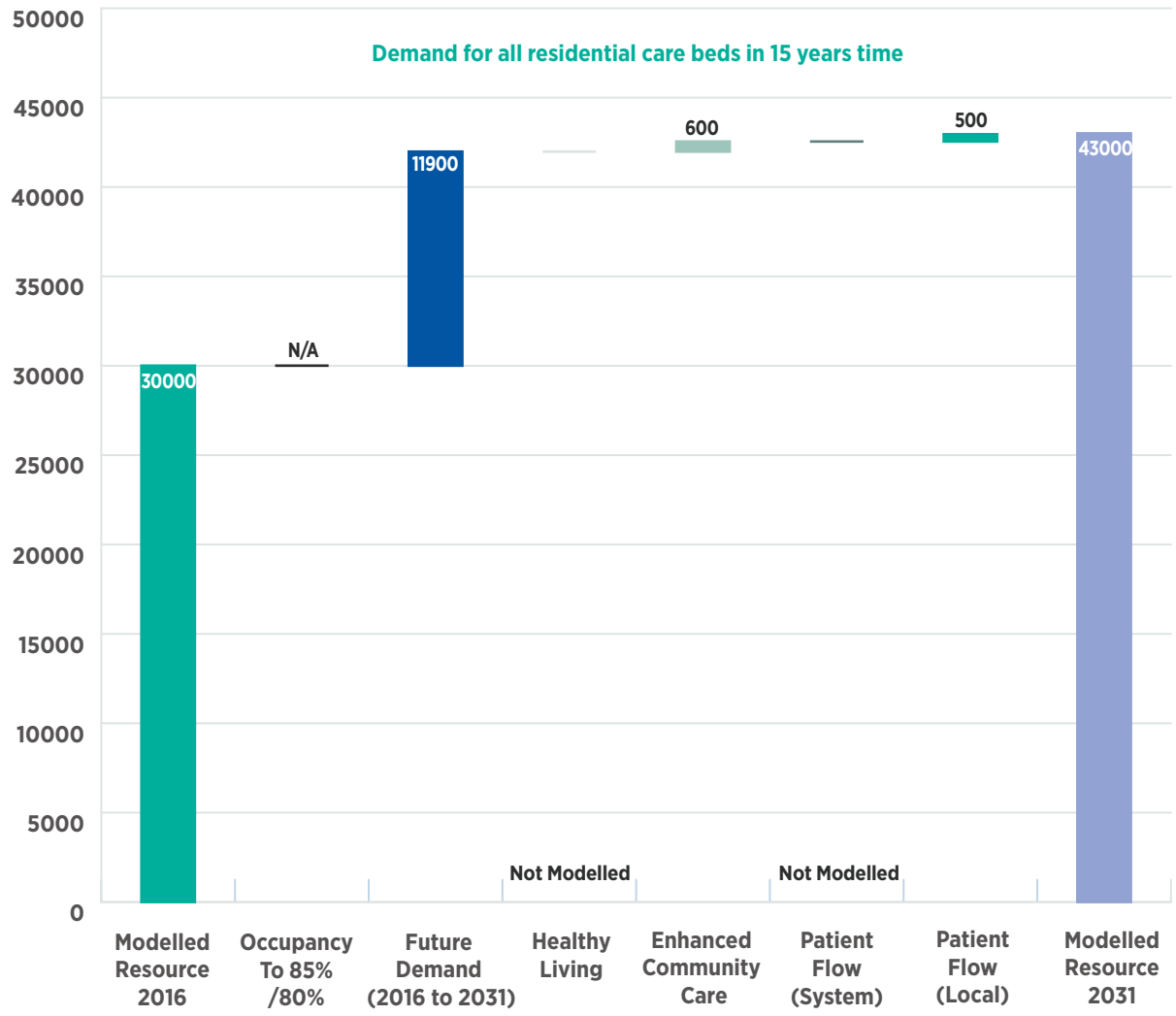
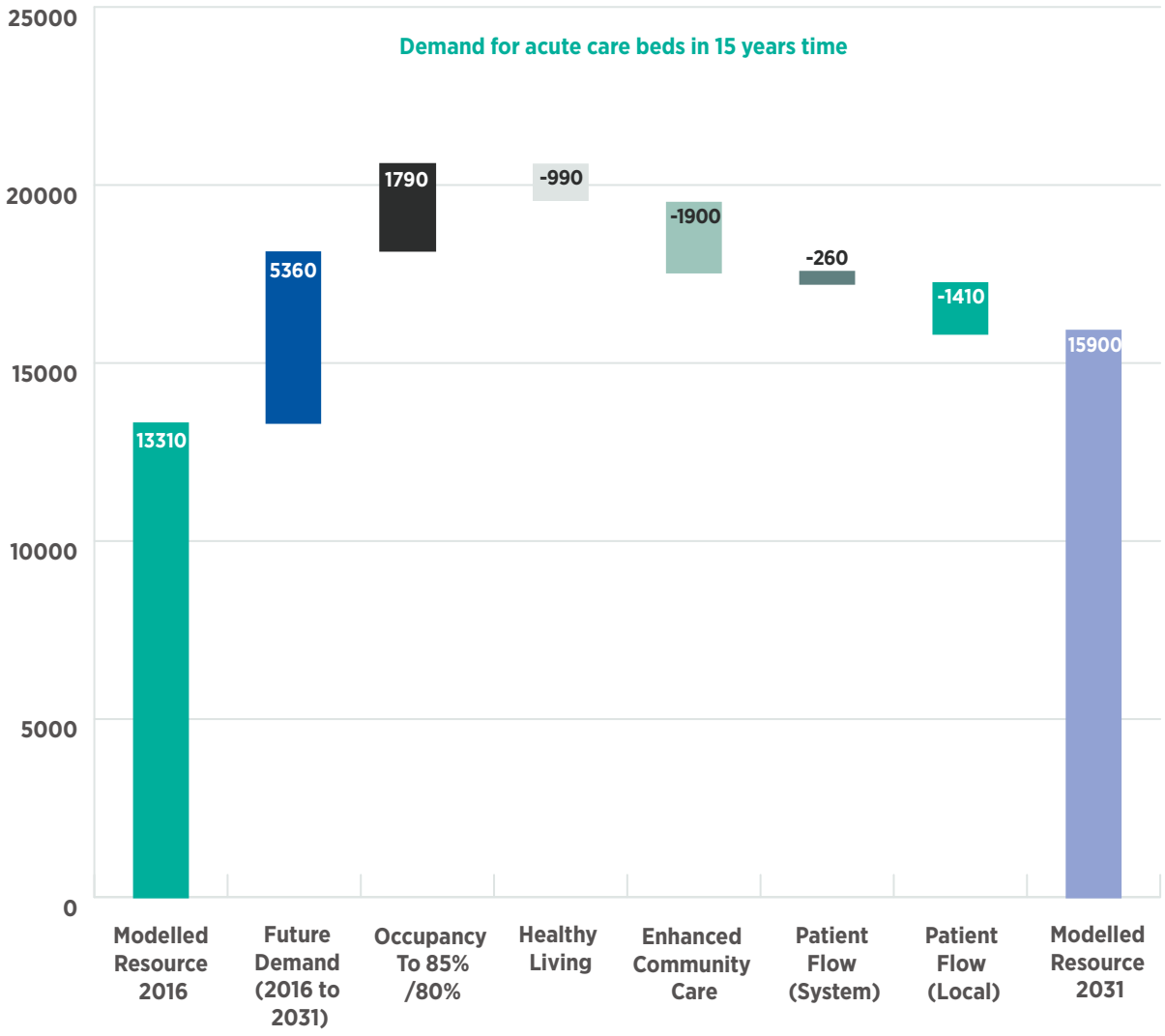


Figure 8: Acute Hospital Beds Summary



Note: Excludes Psychiatry Beds and Paediatric/Neonatal Critical Care (PICU & NICU) beds; Includes Inpatient, Daycase, AMU, Adult Critical Care beds.)

Table 12 summarises the impact across the reform scenarios for the main PODs.

Table 12: Summary forecast of capacity for all Points of Delivery, with Scenario increases/decreases

Sector	POD	2016	Forecast Growth	Scenario 1	Scenario 2	Scenario 3A	Scenario 3B	2031 Forecast
Primary Care	GP WTEs	3,570	1,400	-240	-150	20	-	4,600
	PN WTEs	1,400	500	-100	800	-	-	2,600
	PHN WTEs	1,500	700	-100	400	-	100	2,600
	AHP–PHY WTEs	540	200	-40	90	-	50	840
	AHP–OT WTEs	500	160	-30	90	-	40	760
	AHP–S&LT WTEs	470	-30	-20	-	-	-	420
Services for Older Perons	RC LT Beds	26,200	10,100	-	-	-	400	36,700
	RC ST Beds	3,800	1,800	-	600	-	100	6,300
	HCP (per mth)	15,600	11,000	-	7,200	-	800	34,600
	IHCP (per mth)	200	130	-	-	-	330	660
	HHH (millions)	10.6	7.2	-	4.8	-	0.5	23.1
Acute Care	AMU Beds	430	160	-30	-	-	-130	430
	Day Case Beds	2,140	1000	-160	-	-60	-480	2,440
	IP Beds (85%*)	10,500	5,800	-800	-1,900	-200	-800	12,600
	ACC Beds (80%*)	240**	190	-	-	-	-	430

* (Assuming 80% occupancy for Adult Critical Care, 85% occupancy for other Inpatients).

** Rounded from 237 (actual 2016 figure). Source: Critical Care Programme.

Table 13: Summary of Forecast Capacity by POD following Reform Scenarios (combined effect) with percentage changes from baseline

Sector	POD	2016	2021	% Δ	2026	% Δ	2031	% Δ
Primary Care	GP WTEs	3,570	3,940	10%	4,230	18%	4,600	29%
	PN WTEs	1,400	1,860	33%	2,390	71%	2,600	89%
	PHN WTEs	1,500	1,930	29%	2,340	56%	2,600	67%
	AHP–PHY WTEs	540	670	23%	780	44%	840	58%
	AHP–OT WTEs	500	620	24%	700	41%	760	50%
	AHP–S&LT WTEs	470	480	1%	440	-7%	420	-11%
Services for Older Perons	RC LT Beds	26,200	29,000	11%	32,600	24%	36,700	39%
	RC ST Beds	3,800	4,550	20%	5,430	43%	6,300	62%
	HCP	15,600	21,800	40%	28,800	84%	34,600	122%
	IHCP	200	350	73%	550	175%	660	230%
	HHH (million)	10.6	14.4	36%	19.3	82%	23.1	118%
Acute Care	AMU Beds	430	420	-2%	390	-8%	430	0%
	Day Case Beds	2,140	2,300	7%	2,240	5%	2,440	14%
	IP Beds	10,500	11,900	13%	11,500	10%	12,600	20%
	ACC Beds	240	330	39%	380	58%	430	79%

Further work would be needed to assess the optimum reform strategy that takes account of workforce, the whole life cost of services, the feasibility of delivering infrastructure and impact on operational services in the timeframe. It would also need to take account of the wider implications arising from major reconfigurations of services across hospitals.

In practice the achievable shape of the future health system is likely to lie somewhere between the two extremes set out in this Capacity Review. This review has focused principally on the major changes impacting the capital expenditure plan. Overlaying consideration of workforce, the practicalities of implementing the programme of investment in facilities and the capacity for change within the health system will provide a view of an 'optimum' for Ireland. As with all forecasts, there will remain assumptions that will need to be tested through careful evaluation of performance and outcomes as any improvements are implemented.

Notes:
1. IP and ACC numbers: 2021, 2026, 2031 are based on planned utilisation figures.
2. Forecasted demand numbers have been rounded. In general, %s shown are based on unrounded numbers, but rounded to the nearest 1%.
3. HH numbers: This line formatted to 1 decimal point.

KEY FINDINGS AND RECOMMENDATIONS

7.1 Key Findings

Topic	Detail
Growth in Demand	The demand for healthcare is expected to grow significantly across the primary, acute and social care settings in the next 15 years as a result of demographic and non-demographic change. This includes: • Up to 46% rise in demand for primary care • 39% rise in the need for long term residential care • 70% increase in demand for homecare • 24% increase in non-elective inpatient episodes in public hospitals
Addressing potentially unsafe levels of bed occupancy	Occupancy levels across the acute hospital system in Ireland are far in excess of international norms. These levels of occupancy compromise patient safety, contribute to the spread of healthcare associated infections, and impede the efficient and effective use of resources and reduce the availability of surge capacity. To reach international standards of bed occupancy would see the need for an immediate injection of the equivalent of an additional 1,260 beds in the system. In practice, an increment in capacity is likely to be achieved with a mix of hospital beds, residential care, homecare packages and enhanced primary care services, as well as management measures to improve patient flow and open currently closed beds.
Baseline capacity forecast	The baseline forecast is for a sharp rise in the capacity needed across all sectors by 2031 to meet forecast demand, including • A 37% rise in the primary care workforce, • Up to 12,000 residential care beds in social care • 70% increase in homecare • 7,150 extra hospital beds in public hospitals including around 5,800 inpatient, 1,000 day case, 160 AMU and 190 adult critical care beds. (This assumes an improved occupancy rate)

Topic	Detail
Reform needed to drive more appropriate care models and protect sustainability of system	There is broad consensus that it is neither feasible nor appropriate to plan investments around the current pattern of delivery. Significant reform is needed. International evidence indicates that this should involve greater levels of investment in primary and community based care to create a responsive health system which meets needs and (reasonable) expectations to deliver health gain, and as a consequence mitigates the extent of additional acute hospital capacity needed. Three aspects of a reformed health system have been considered: health and well-being initiatives, recalibration towards community-based care, especially for older people and productivity improvements. All involve a shifting of care away from hospitals which is supported by enhanced models of care within hospitals. Taken together, these represent a best case for the level of capital investment in hospital capacity needed. Full implementation of all three reforms would alter the capacity needed across all sectors by 2031 to: • 2,590 extra hospital beds including around 2,100 inpatient, 300 day case, and 190 adult critical care beds • A 48% increase in the primary care workforce, • 13,000 residential care beds and • 120% increase in homecare (home help hours and homecare packages)
Further work required	The analysis has established two extremes that define the range of potential capacity needs and the level of reforms involved. Further work would be needed to assess the optimum reform strategy that takes account of workforce, the whole life cost of services, eligibility arrangements and their impact on implementing reforms, the feasibility of delivering infrastructure and impact on operational services in the timeframe. It would also need to take account of the wider implications arising from major reconfigurations of services across hospitals.

7.2 Recommendations

Topic	Detail
Investment in out-of-hospital care	Multi-annual expenditure plans should be established to support the development of enhanced capacity in primary and social care and health and well-being initiatives.
Short term hospital bed capacity improvements	Plans should be made for the urgent provision of additional capacity in acute hospitals to alleviate currently high levels of bed occupancy, and difficulties with appropriate access to acute hospitals and patient flow.
Capital investment	Capital investment has a key role to play both in enhancing service provision and as a driver of reform. Investment should support a clear and sustained programme of reform and productivity improvement. Capital investment plans for the period to 2031 should incorporate provision for enhanced capacity of at least an additional: • 2,590 hospital beds (Inpatient, adult critical care and day case beds). • 13,000 residential care beds. • Primary care facilities to reflect the need for a 48% uplift in the primary care workforce. Planning for delivering additional capacity should take place immediately and should be based on population need. In the case of acute hospitals, a key principle will be the need to achieve greater separation between scheduled and unscheduled care. Hospital Groups should be tasked with determining capacity needs of their region as part of Strategic Planning. In addition, a significant programme of investment in ICT and eHealth will be required.
Next steps	Further consideration should be given to: • The feasibility of implementing the scenarios, particularly in meeting workforce needs and overcoming workforce constraints both in and out of hospital. • The corresponding impact of other services that are out of scope – including mental health and disabilities. • Wider implications of some changes, such as the reconfiguration of hospitals and on public access to safe and high quality services. • The development of clear evaluation frameworks to continuously monitor and assess the impact of reform initiatives as they are rolled out. • How additional capacity should be planned and delivered at a regional level based on population need. • Development of robust and comprehensive data systems.

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