Technical Support Project on Health and Social Care Workforce Planning in Ireland

Deliverable 7: Project Final Report

Technical Support Instrument

Supporting reforms in 27 Member States

Funded by
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The project is funded by the European Union via the Technical Support Instrument, managed by the European Commission Reform and Investment Task Force (SG REFORM).

This report has been delivered in January 2024 under the EC Contract No. SRSS/2018/01/FWC/002. It has been produced as part of the project “Health and Social Care Workforce Planning in Ireland ”.

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Executive Summary

This report is submitted to the European Commission, Directorate-General for Structural Reform Support (DG REFORM) by AARC-Indecon (the project team). This document represents the Final Project Report on the DG REFORM Technical Support Instrument (TSI)-supported project on Health and Social Care Workforce Planning in Ireland. The project was undertaken with the objective of achieving the following overall outcomes:

- Outcome 1: To enable the Irish authorities to have the necessary tools, processes, and technical capacity to produce rolling health and social care workforce planning action plans and implement targeted policy measures for health and social care workforce reform.
- Outcome 2: To increase awareness of project outputs and results among Irish and EU stakeholders, as well as the public.

Project Activities Carried Out

Against this background, this Technical Support Instrument (TSI) project, funded by the European Commission, is a critical element in facilitating the achievement of the policy reforms in Ireland and has potential implications for other EU Member States. The project activities undertaken included the following:

- The formulation of a new 'Health and Social Care Workforce Planning Strategy and Action Plan' to inform the model development and set out initial recommendations in terms of the project outputs, data considerations and governance.
- The development, based on international best practice approaches, of a framework of formalised models to facilitate scenarios and projections for workforce supply and demand.
- The design of demand- and supply-side scenarios and associated assumptions to inform the generation of projections for workforce supply and demand, and the identification of supply-demand 'gaps', across a wide range of health and social care workers in Ireland.
- The design of policy recommendations to address projected supply-demand gaps.

Projections, Gap Analysis and Policy Recommendations

Following model development, workforce projections were undertaken through designing and applying alternative scenarios. Demand scenarios focussed on assumptions regarding different healthcare policies (Demand Scenario B), workforce reforms on top of healthcare policies (Demand Scenario C) vis-à-vis a status quo scenario (Demand Scenario A) involving central population projections and existing serviced utilisation profiles.

For Medical Practitioners the impacts of population growth and demographics is expected to increase the demand for Medical Practitioners by 40% between 2021 to 2042. Health policies, including preventative care and the reduction of avoidable hospitalisations will however reduce the demand for medical practitioners, compared to what would be needed without these policy reforms, to 33%. The workforce policies modelled for Medical Practitioners under scenario C involve a change in grade mix with minor impacts on overall demand.

For Nursing and Midwifery professions, the impacts of demographics are expected to increase demand by 38% between 2021 and 2042. Projections show that there will likely be a requirement for additional nurses and midwives in order to achieve policy objectives concerning waiting lists reductions, community care enhancements, and increased service provision in Disabilities, Mental Health, Older Age and Primary Care. These scenario B policies increase Nursing and Midwifery demand by 44% in 2042. Scenario C workforce policies further increase requirements by 50%; this is driven by increased demand for Intellectual Disability Nurses, Mental Health Nurses and Advanced Practitioners.

The model results also show that the impacts of population growth and demographics is expected to increase the demand for Pharmacists by 40% by 2042. Demand is projected to increase by 42% when health policy impacts are taken into consideration.

In respect of certain regulated HSCPs,[1] aggregate demand across these professionals could increase by 29% in 2042 when demographic impacts are taken into account. Demand could increase by up to 48% by 2042, under the scenario with healthcare policies implemented. Note the profession-specific growth rate for a given HSCP will differ from the aggregate growth rate.

A set of proposed policy recommendations and recommended supporting measures was developed for consideration by the Irish Government to build on the success of this project. To drive successful implementation, a policy-specific framework was also developed to monitor, evaluate and revise implementation of the recommended policy measures to address projected workforce supply-demand gaps.

Lessons Learned and Implications for Other Countries

This project represented an approach to assist the Irish authorities to develop the necessary tools, processes, and technical capacity to produce rolling health and social care workforce planning models. A number of the lessons learned from the project implementation may have implications for what can be repeated in other countries. Key elements for consideration have been identified, which could potentially be replicated in other countries and other regions.

Recommended Next Steps

The proposed implementation is designed to provide a roadmap to build on the success of this project and to meet the following requirements:

- The development of a system of rolling action plans prepared on a regular basis following review of the effectiveness of the existing action plan.
- Applying a programmatic and project management approach, which recognises the complex nature of system change, as well as the interdependencies between many of the actions.
- Communication and engagement with all relevant stakeholders, to ensure that partners and stakeholders at all levels of the system understand work planned and/or underway, their roles in leading or supporting implementation, and the opportunities to feed into and inform the work.
- Building the evidence base so that high quality, complete, and timely data, and information and analysis are made available to support workforce modelling and inform decision-making and identification of appropriate policies and strategies.
- Ensuring ongoing monitoring and accountability: Progress on implementing the strategic framework should be monitored by the Cross-Departmental Group, chaired by the Department of Health, with regular progress reports to be submitted to the Minister for Health, as appropriate. There is merit in considering periodic strategic reviews of the framework.
- To respond to the workforce supply-demand gap analysis conducted, consider implementing the policy recommendations.

[1] Including Dispensing Opticians, Occupational Therapists, Optometrists & Social Workers.

1. Introduction and Background

1.1 Introduction

This document represents a final project report on Framework Contract: SRSS/2018/01/FWC/002. The report is submitted to the European Commission, Directorate-General for Structural Reform Support (DG REFORM) by AARC-Indecon (the project team). The project was supported by the European Commission Technical Support Instrument (TSI) and concerns Health and Social Care Workforce Planning in Ireland. The project is designed to achieve the following outcomes:

- Outcome 1: To enable the Irish authorities to have the necessary tools, processes, and technical capacity to produce rolling health and social care workforce planning action plans and implement targeted policy measures for health and social care workforce reform.
- Outcome 2: To increase awareness of project outputs and results among Irish and EU stakeholders, as well as the public.

As highlighted in the Government's Sláintecare Implementation Strategy & Action Plan 2021-2023, "Having sufficient capacity in the workforce and the appropriate configuration of staff and skill-mix are integral to the delivery of safe and timely health and social care services." Ireland, like many other EU Member States, faces challenges in the recruitment and retention of in-country trained nurses and midwives, doctors, and health and social care professionals. As a result, the state is heavily reliant on immigration of foreign-trained health and social care professionals to the country.

Coinciding with these challenges, Ireland aims to implement an ambitious health and social care system reform, the Sláintecare Reform Programme. The reform programme aims to address many of the challenges the health and social care system is facing, including through a stronger orientation towards primary and social care settings, community care provision through Community Health Networks, taking a population-based approach to service planning and funding, and promoting integration of care.[2] Ensuring that sufficient professionals are trained, attracted, and retained in the areas where need is anticipated, forms a key part of the objectives and activities under the Workforce Planning programme within Sláintecare.

1.2 Scope of Final Report

Against this background, this Technical Support Instrument (TSI) funded by the European Commission is a critical element in facilitating the achievement of the policy reforms in Ireland and has potential implications for other EU Member States. This final report includes a description of:

(i) The activities carried out and a concise summary of outputs.
(ii) Lessons learned from project implementation.
(iii) Elements that can be replicated in other countries and/or regions.
(iv) A roadmap for future actions by the Irish authorities.
(v) Updated stakeholder mapping.

[2] Committee on the Future of Healthcare - Sláintecare Report, May 2017. See: https://assets.gov.ie/22609/e68786c13e1b4d7daca89b495c506bb8.pdf

1.3 Acknowledgements

The AARC-Indecon project team would like to acknowledge the support and inputs provided by a number of key personnel and wider stakeholders during the course of completion of this major project. We would particularly like to thank senior management within the European Commission, DG REFORM, including Raluca Painter, Simon Drees and Federico Paoli, as well as senior and other officials within the Department of Health in Ireland, including Robert Watt, Rachel Kenna, Muiris O'Connor, Breda Rafter, Terence Hynes, Jennifer Greene, Orlaith Hodgins, Paul Caulfield, Peter O'Connor, John Heslin, Sarah Treleaven, Martha Purcell, Maeve Crowe, Fiona Steed, Evelyn Hickey, and Andrew Hannigan.

We would also like to express our gratitude to senior personnel within the Health Service Executive, including Philippa Ryan Withero, Liz Roche, Roisin Morris, Deirdre Mulligan, Des Williams, Paul Kavanagh, Howard Johnson, Ian Darbey, Leah O'Toole, Mary Samuel, and Ruth Kilcawley.

The project team would also like to thank the wide range of other organisations and individuals who provided valuable support and inputs to the strategy. These include the Department of Further and Higher Education, Research, Innovation and Science; Department of Children, Equality, Diversity, Integration and Youth; Department of Enterprise, Trade and Employment; Department of Education; Economic and Social Research Institute; Higher Education Authority; SOLAS; Irish Medical Council; CORU; Nursing and Midwifery Board of Ireland; Dental Council of Ireland; TUSLA; National Disability Authority; Health Research Board; Pharmaceutical Society of Ireland; Pre-Hospital Emergency Care Council; Nursing Homes Ireland; Home and Community Care Ireland; Irish Medical Schools Council; Forum of Postgraduate Medical Training Bodies; Irish Life Health Insurance; and Laya Health Insurance.

In addition, we would like to extend our appreciation to the over 130 individuals who participated in the international workshop hosted by Indecon on 7th June 2022, including the international experts who presented during the event. These include Dr Amani Siyam (World Health Organisation); Gaetan Lafortune (Organization for Economic Cooperation and Development (OECD)); Professor Ronald Batenburg (NIVEL Institute for Health Services Research, Netherlands and Radboud Universiteit Nijmegen); Åsa Olsson (Socialstyrelsen/National Board of Health and Welfare, Sweden); Nichola Hattie (Senior Team Lead, National Health and Social Care Team, The Scottish Government); Professor Gareth H. Rees (ESAN University, Peru); Paolo Michelutti (Agenas, Italy); Professor Stephen Birch (Centre for Business and Economics of Health, University of Queensland and World Health Organisation (WHO) Collaborating Centre on Health Human Resources, Dalhousie University); and Professor Stephen Kinsella, University of Limerick Kemmy Business School.

The views and analysis in this report are the sole responsibility of the AARC-Indecon team.

2. Project Activities Carried Out

2.1 Introduction

This section presents a description of the activities carried out and a summary of some of the key outputs. The activities undertaken included the following:

- Development of an Inception report.
- Development of an initial Strategy and Action Plan to inform the model development and set out initial recommendations in terms of the project outputs, data considerations and governance.
- Development, based on international best practice approaches, of a framework of formalised models to facilitate scenarios and projections for workforce supply and demand.
- Design of demand- and supply-side scenarios and associated assumptions to inform the generation of projections for workforce supply and demand, and the identification of supply-demand 'gaps', across a wide range of health and social care workers in Ireland.
- Design of policy recommendations to address projected supply-demand gaps.

2.2 Development of Strategy and Action Plan

As part of the project, a Health and Social Care Workforce Planning Strategy was designed to address the need for an integrated, comprehensive, and sustainable approach to health and social care workforce planning in Ireland:

- The strategy reflects the Sláintecare reform agenda and responds to the associated implementation challenges, while also building on and updating the framework set out in the 2017 National Strategic Framework for Health and Social Care Workforce Planning.
- The strategy lays out an approach to health and social care workforce planning that builds on and integrates ongoing and prior activities in Ireland and is informed by reference to international best practice approaches.
- The strategy sets out recommendations for improvement and reform of the health and social care workforce planning processes in Ireland and outlines concrete steps for implementing these recommendations in the form of a first action plan. This includes proposals on how workforce planning activities and different stakeholders can be better aligned as part of a health and social care workforce planning ecosystem.

To inform this strategy, a detailed assessment was conducted on the maturity of existing health and social care workforce planning approaches and methods in Ireland. Overall, the assessment found that while the 2017 National Strategic Framework for Health and Social Care Workforce Planning recommended a new governance framework, which was subsequently established, this was not fully operationalised due to the COVID-19 pandemic. The maturity assessment re-affirmed the need for an appropriate cross-departmental structure to:

- Identify needs and prioritise cross-sectoral health and social care workforce planning projects, and form policy solutions based on workforce planning analysis and projections.
- Develop joint education and workforce plans, recruitment and retention plans, and other policies to address the gaps and bottlenecks identified through the workforce analysis and modelling.
- Support multisectoral collaboration and integrated planning of education and training, and recruitment international health personnel, to meet HSC (health and social care) workforce requirements over short-, medium-, and longer-term time horizons.

The assessment re-emphasised the need for an appropriate structure to engender support and buy-in among stakeholders; to oversee and coordinate data gathering and other workforce planning model inputs; to facilitate collaboration and coordination between the different sectoral groups; and to provide visibility of planning outputs across the health and social care system. There is also the need for an appropriate governance structure to ensure that workforce implications of the establishment of the new Health Service Executive (HSE) Health Regions and Elective Hospitals are taken into consideration in health and social care workforce planning processes.

Maturity Assessment and Existing Health and Social Care Workforce Modelling Capabilities

The Indecon team undertook a maturity assessment informed by reference to best practice methodologies internationally. Specifically, a blended approach was applied, utilizing the Health Workforce Planning Toolkit developed by the EU Joint Action on Health Workforce Planning and Forecasting (often called the SEPEN toolkit), as well as the relevant modules of the WHO National Health Workforce Account (NHWA). A summary of the assessment scores is presented in Table 1. The toolkit advises to assign scores to each of the 13 items based on the extent to which the requirements are met:

- 0 = not met.
- 1 = somewhat/partially met.
- 2 = completely met.

Table 1: Maturity Assessment – Summary of Assessment Scores	
Dimension	**Assessment Score**
1. Set-up of Clear and Explicit Health Workforce (HWF) Planning Objectives in National Health Policy	1
2. Achievement of strong political commitment and awareness	2
3. Coordinated communication and information flow among national-level stakeholders	1
4. Dedicated and established HWF Planning Committee at the national level, designated responsible entity/specific group	1
5. Multisectoral collaboration in HWF planning	1
6. Established methodology and use of explicit model elements (from simple scenarios to complex mathematical simulations)	1
7. Data coverage and completeness on both demand and supply sides	1
8. Different data sources linked to each other, fostered data exchange, building an integrated interlinked database/warehouse	0
9. Support of online platforms, Human Resources (HR) information systems	1
10. Utilisation of Qualitative Methods	1
11. Regular evaluation of the HWF Planning System, continuous fine-tuning	2
12. Implementation and policy actions based on recommendations by the HWF Planning Committee	1
13. Sustainability ensured by accomplishable/adequate resources	2
Source: Indecon	

In relation to existing health and social care workforce modelling capacity, the maturity assessment has taken account of the existing supply modelling framework. This includes the Department of Health's system dynamics models for nursing and doctors. Also included is the HSE National Doctors Training and Planning (NDTP) model, which is used on a rolling basis to inform training and consultant places. Modelling undertaken for professions other than nurses and midwives and doctors is limited. On the demand side, there is some limited modelling within the HSE, as the NDTP unit internally uses specialty specific integrated supply-demand models to inform doctor training intake numbers.

The Health and Social Care Workforce Planning Strategy brought public and private sector stakeholders together through a set of structures and processes to achieve health workforce sustainability and, through implementation of the strategy, help deliver improved health outcomes for Ireland's citizens. In framing the proposed structures and approaches, the strategy follows a number of guiding principles. The recommended guiding principles reflect the requirements of Ireland's health reform agenda.

Data Mapping and Research Review

In addition to integrating the findings of the maturity assessment, we completed a detailed data source mapping exercise, and research review to inform the technical specifications of a health and social care workforce planning model. The development of the workforce planning modelling framework was also informed by the completion of the data source mapping exercise. The exercise highlighted a number of gaps in the availability of data across professions and health and social care settings.

Recommendations in the Strategy and Action Plan

Reflecting the findings of the assessment of maturity of existing workforce planning in Ireland and the findings of the data mapping exercise, this project also sets out a number of recommendations, as well as an initial action plan to drive implementation of these recommendations. These include proposals on how workforce planning activities and different stakeholders can be better aligned as part of a health and social care workforce planning ecosystem (further details can be found in Table in the Recommendations section). These also include recommendations on data management and data requirements to support efficient ongoing gathering and updating of workforce supply- and demand-side data inputs (further details in Table) The recommendations and action plan also take into consideration the Department of Public Expenditure, NDP Delivery and Reform's guidance on strategic workforce planning.

2.3 Model Development

In addition to the detailed data mapping exercise, an extensive review of national and international research literature was undertaken to identify options available for the technical specification of the recommended workforce planning modelling framework. Depending on the objectives being addressed, at least three broad types of modelling framework were identified as follows:

- Stock-flow supply models, which estimate the evolution of the stock of a given occupation based on the addition and subtraction of annual inflows and outflows.
- Utilisation-based models, which estimate the evolution of health service output based on projected demographic changes.
- Needs-based models: models that, starting from an estimate of the current need for health workers, estimate the variation in healthcare need based on how various risk factors can impact on the health of the population and therefore on the requirement for health workers.

The majority of planning models tend to involve some combination of these approaches, though usually with the supply component being relatively more developed than the demand-side element. In general, this is largely because workforce supply tends to be more straightforward to identify and measure in its current state and to predict future changes.

Based on these findings, in developing the proposed workforce planning modelling framework, a number of overarching requirements were factored into the process:

- The ability to project both demand and supply and facilitate a 'gap analysis', to identify any likely gaps/imbalances between supply and demand for individual professions. For some professions, data availability issues constrained the modelling of the supply side; for these professions, the project significantly increased the ability to project future requirements, although a full gap analysis is not yet available.

- The importance of reflecting the inputs of relevant expert stakeholders in informing scenarios for future workforce supply and demand.
- The setting of appropriate time horizons for scenarios and projections which reflect the lead-in times required to train different categories of health and social care professionals.
- The need to apply an evolutionary approach, which prioritises key health and social care workers and adds refinements to models as data availability expands.

The next table sets out the approach used to develop the workforce planning modelling framework.

Table 2: Approach Used to Develop Workforce Planning Modelling Framework
1. An integrated supply-demand modelling framework was used to facilitate scenario testing and development of projections over appropriate time horizons, and to inform evidence-based approaches to addressing any identified gaps between demand and supply across different HSC workforce categories.
2. Supply-side modelling incorporated a 'stock-flow' framework for assessing and projecting supply across evolving workforce categories.
3. Modelling of Demand for HSC workforce where feasible utilised a needs-based approach to reflect evolving health and social care needs.
4. The model development was designed in a way which facilitates an analysis of workforce integration and scenarios of integrated care. It also enables projections of the future workforce taking into account the major drivers of healthcare demand, strategic health policy reforms and workforce specific reforms.
Source: Indecon

2.4 Workforce Projections and Gap Analysis

As part of the work completed, a gap analysis was prepared which brought together the demand and supply sides of the model. The gap analysis was completed only for those professions where it was possible to model both the demand and the supply sides. The workforce gap is defined as the difference between supply and demand, with a negative gap indicating a projected shortage for the profession or role in question. The gap is projected based on assumptions around the future dynamics of demand, supply and productivity. Indecon has identified a preferred set of scenarios which capture the variation in projected demand occurring as a result of the planned health and workforce policies, and future dynamics of supply and productivity. The scenarios have been developed in consultation with the Department of Health and have also been validated with stakeholders in a series of workshops. Profession-specific details on the supply side assumptions were also developed.

Scenarios

Box 1: Demand Scenarios

Demand scenarios

The main demand scenarios analysed in the gap analysis are as follows:

- **Scenario A** – 'Status quo' scenario with current utilisation rates and central population growth.
- **Scenario B** – Builds on Scenario A and includes implementation of Sláintecare and other health policies:
  - Reduction in waiting lists.[3]
  - Preventative healthcare and impacts on healthy ageing.[4]
  - Enhanced community care and reduction of avoidable hospitalisation.[5]
  - Enhanced mental health, disability, and older age services.[6]
  - Introduction of elective care hospitals, and transfer of private care from public hospitals.[7]
- **Scenario C** – Builds on Scenario B and includes workforce reforms recently developed and calibrated based on previous research[8], including:
  - A reduction of the Non-Consultant Hospital Doctor (NCHD) in training to Consultant ratio over the projection horizon.
  - An increase in Advanced Practice Nurses in public acute hospitals.
  - An increase in the ratio of Healthcare Assistants (HCAs) to Staff Nurse in public acute hospitals

Source: Indecon

[3] 'Projections of Demand for Healthcare In Ireland, 2015-2030 First Report from the Hippocrates Model', Economic and Social Research Institute (ESRI), October 2017. See: https://www.esri.ie/system/files/publications/RS67_Print%20%26%20Online.pdf

[4] Ibid.

[5] 'Universal Primary Care: Cost and Workforce Implications', ESRI, December 2022 and 'Projections of Expenditure for Public Hospitals in Ireland, 2018–2035, Based on the Hippocrates Model', ESRI, December 2022. See: https://www.esri.ie/system/files/publications/RB202222.pdf and https://www.esri.ie/system/files/publications/RS117_1.pdf

[6] 'An Analysis of the Effects on Irish Hospital Care of the Supply of Care Inside and Outside the Hospital', ESRI, September 2019 and HSE, National Service Plan 2022 and 2023. See: https://www.esri.ie/system/files/publications/RS91_1.pdf and https://www.hse.ie/eng/services/publications/serviceplans/national-service-plan-2023.pdf

[7] Confidential material and 'Projected private hospital expenditure in Ireland, 2018–2035', ESRI, December 2021. See: https://www.esri.ie/publications/projected-private-hospital-expenditure-in-ireland-2018-2035

[8] 'Projections Of Workforce Requirements For Public Acute Hospitals in Ireland, 2019–2035 - A Regional Analysis Based on the Hippocrates Model', ESRI, July 2022. See: https://www.esri.ie/system/files/publications/RS147.pdf

In Box 2 below the preferred supply scenario development is presented.

Box 2: Preferred Supply Scenario

In the preferred supply scenario analysed in the gap analysis, reliance on immigration is reduced gradually and domestic education and training places are increased as required to minimise the gap throughout projection period. Specifically:

- Inward migration is reduced to a maximum of 10% of total annual inflows.
- Calibration of inward migration reduction is used as a buffer to allow expansion of domestic capacity.
- Timing of increase in education/training places:
  - Gradual increase, allowing time for capacity within the higher education system to grow.
  - Starting in 2024 and targeting a steady state level by 2030, additional subsequent increases when needed.
- Timing of inward migration reduction is profession-specific and depends on:
  - Size of historical inward migration flows relative to domestic inflows.
  - Length of education and training pathways.

Source: Indecon

Workforce Projections

For Medical Practitioners the impacts of population growth and demographics is expected to increase the demand for Medical Practitioners by 40% between 2021 to 2042. Health policies, including preventative care and the reduction of avoidable hospitalisations will however reduce the demand for medical practitioners, compared to what would be needed without these policy reforms, to 33%. The workforce policies modelled for Medical Practitioners under scenario C involve a change in grade mix with minor impacts on overall demand.

Table 3: Demand for Medical Practitioners

Timeline	2021 - 2042
Scenario A	40%
Scenario C	33%

Source: Indecon

For Nursing and Midwifery professions, the impacts of demographics are expected to increase demand by 38% between 2021 and 2042. Projections show that there will likely be a requirement for additional nurses and midwives in order to achieve policy objectives concerning waiting lists reductions, community care enhancements, and increased service provision in Disabilities, Mental Health, Older Age and Primary Care. These scenario B policies increase Nursing and Midwifery demand by 44% in 2042. Scenario C workforce policies further increase requirements by 50%; this is driven by increased demand for Intellectual Disability Nurses, Mental Health Nurses and Advanced Practitioners.

Table 4: Demand for Nurses & Midwives

Timeline	2021 - 2042
Scenario A	38%
Scenario B	44%
Scenario C	50%

Source: Indecon

The model results also show that the impacts of population growth and demographics is expected to increase the demand for Pharmacists by 40% by 2042. Demand is projected to increase by 42% when health policy impacts are taken into consideration.

Table 5: Demand for Pharmacists	
Timeline	**2021 - 2042**
Scenario A	40%
Scenario B	42%
Source: Indecon	

In respect of certain regulated HSCPs,[9] aggregate demand across these professionals could increase by 29% in 2042 when demographic impacts are taken into account. Demand could increase by up to 48% by 2042, under the scenario with healthcare policies implemented. Note the profession-specific growth rate for a given HSCP will differ from the aggregate growth rate.

Table 6: Demand for Certain Regulated HSCPs	
Timeline	**2021 - 2042**
Scenario A	29%
Scenario B	48%
Source: Indecon	

Required increases in education places to support workforce demand and reduce reliance on inward migration

An analysis of the education places required under Demand scenario C for Medical Practitioners and Nursing and Midwifery, Demand Scenario B for Pharmacists and Certain Regulated HSCPs and preferred supply scenario.

The timing for the increases in education places was calibrated to allow time for capacity within the higher education system to grow. The pace at which inward migration can be reduced sustainably, i.e., without creating large shortages before the education system has grown to the required level, varies between the preferred supply and the alternative scenarios.

Medical practitioners

In the Preferred Supply Scenario (see Box 2), the inward migration flow to stock ratio is initially increased by 11% to avoid the emergence of negative gap in the early years of the projection horizon, and subsequently inward migration is decreased to 10% of inflows between 2028 and 2037.

[9] Including Dispensing Opticians, Occupational Therapists, Optometrists & Social Workers.

Table 7: Required UG Education Places for Medical Practitioners				
	Total UG places			
	2021	2030 Target	Growth to 2030	Annual growth
Demand Scenario C	1,396	2,290	64%	7%
Source: Indecon				

Nursing and Midwifery

In the Preferred Supply Scenario (see Box 2), inward migration is not initially increased to avoid the emergence of negative gap in the early years of the projection horizon, following consultation with Department of Health (DoH) indicating that the level of migration for these professionals is already high and a further increase would not be feasible. Inward migration is assumed to decrease to 10% of inflows between 2030 and 2038.

Table 8: Required UG Education Places for Nursing and Midwifery				
	Total UG places			
	2021	2030 Target	Growth to 2030	Annual growth
Demand Scenario C	1,929	6,359	230%	19%
Source: Indecon				

Pharmacists and Certain Regulated HSCPs

In the Preferred Supply Scenario (see Box 2), inward migration is decreased to 10% of inflows between 2024 and 2026 for HSCPs and between 2030 and 2035 for Pharmacists.

Table 9: Required Education Places for Pharmacists and Certain Regulated HSCPs			
	2021	2030 Target	Growth rates to 2030
	Baseline	Demand B	Demand B
Pharmacists	200	596	198%
Dispensing Optician	15	15	0%
Occupational Therapists (incl. PG places)	120	211*	76%
Optometrists	35	83	137%
Social Workers (incl. PG places)	255	372*	46%
Source: Indecon.			
Notes: * With accurate vacancy data, the student numbers would be higher.			

Limitations

Owing to issues around the quality of inflow data, which meant that meaningful supply projections could not be obtained, a gap analysis could not be undertaken for some specific regulated HSCPs. For Speech and Language Therapists, Dieticians, Radiation Therapists, and Radiographers, data availability was impinging on the reliability of supply projections. Therefore, a gap analysis is not available at this juncture.

Similarly, due to data constraints, in the case of Physiotherapists, Medical Scientists, and Podiatrists, the workforce model does not include modelling of the supply side for these professions, therefore a gap analysis is not available.

Building on the extensive data mapping and modelling work undertaken as part of this project, further work in this area will facilitate enhancement of the capabilities of the model for these professions.

It is also important to note that the approach to the development of gap projections is mathematical in nature and represents a useful although imperfect tool to policy decision making. For instance, it would be difficult to track inward migration flows to the exact percentages assumed in the mathematical model used for the projections. However, the data and outputs produced provide a strong evidence base for policy development and workforce planning.

As with any modelling exercise, assumptions are employed in the analysis. The assumptions included rely to the greatest extent possible on evidence and data to ensure they are realistic. It may be appropriate to review the appropriateness of these assumptions and the underlying evidence on an ongoing basis to ensure the reliability of the results.

2.5 Recommendations

The table below outlines recommendations in relation to the overall approach and the governance framework for health and social care workforce planning. These recommendations reflect the findings of the assessment of maturity of existing workforce planning processes.

Table 10: Proposed Governance Framework for Health and Social Care Workforce Planning
1. A robust governance framework should be developed to ensure that health and social care workforce planning in Ireland is prioritised and strategically managed. The governance framework should set out key responsibilities and accountabilities for HSC workforce planning together with clear actions and goals linked to government policy, including the implementation of Sláintecare and HSE Health Regions and Elective Hospitals.
2. Overall policy direction and governance of health and social care workforce planning should be managed and coordinated by the Department of Health.
3. A Cross-Departmental Group should be established to identify needs and prioritise cross-sectoral health and social care workforce planning projects, and to form policy solutions based on the outcomes of workforce planning analysis and projections.
4. A Health and Social Care Workforce Planning Technical Group should be established to oversee and coordinate data gathering and other workforce planning model inputs, facilitate collaboration and coordination between the different sectoral groups, and provide visibility of planning outputs across the health and social care system. The members of this group should include all existing and newly established national workforce planners, including within DoH, HSE, Department of Children, Equality, Disability, Integration and Youth (DCEDIY) and its agencies, and also including external stakeholders (e.g., regulators; education and training bodies; private and voluntary health care providers)
5. Governance structures should include a Health Regions Coordination Group, to ensure that the implications of the establishment of the new HSE Health Regions and Elective Hospitals are taken into consideration in health and social care workforce planning processes.
6. Following implementation of the initial action plan under this strategy, a system of rolling action plans should be prepared every two years.

Recommendations on data management and data requirements are presented in the next table.

Table 11: Recommendations on Data Management and Data Requirements
1. In relation to data management, there is a need to establish a coordinated and collaborative approach between regulators and other data holders to support data gathering and sharing to inform HSC workforce planning modelling. This should include application of appropriate data sharing platforms.
2. New data gathering is required to address identified data gaps and achieve the granularity and coverage of data required across HSC occupations and sectors to support demand and supply projections. This includes the need to coordinate gathering of data on HSC workforce in the private sector and the community sector. It also includes the need to prioritise the development of disease registers and other data collection systems to facilitate a needs-based approach to workforce planning. The new data gathering should be specifically designed for workforce planning and should take into account, wherever possible, the health system performance assessment framework (HSPA Framework).
3. The possible requirement for legislation to support new data gathering processes should be examined as part of the data management and coordination process. The new data gathering processes should also be reflective of the population health needs at both regional and national levels. Health service planning and management at national, regional, and local levels is one of the "relevant purposes" identified in the envisaged Health Information Bill. A relevant purpose is a health service activity for which the proposed National Health Information Authority (to be established under the Bill) will be able to require the provision of health information to it for processing and then sharing (in an anonymised or pseudonymised manner) with those having a public interest reason in using such information.
4. Health and social care databases should be linked, subject to appropriate data protection considerations, to ensure data integration. This can be achieved by linking databases with overlapping data fields and with the use of application programme interfaces. Alternatively, consideration could be given to the introduction of a unique anonymous identifier for individuals working in HSC occupations to enable ongoing monitoring of flows of professionals between sectors and employers (including between public and private sectors). Additional legislation may be required to implement this option, which would be provided and managed by the professional regulators and registers.

An overview of the proposed policy recommendations for consideration by the Irish Government to build on the success of this project is presented in the next table. To drive successful implementation of these policy recommendations, a policy-specific framework was also developed to monitor, evaluate and revise implementation of the recommended policy measures to address projected workforce supply-demand gaps.

Table 12: Policy Recommendations to Address Health Workforce Shortages	
Retention and Recruitment	
1	Conduct research to identify key retention issues and determinants, to inform evidence-based approach to addressing these issues.
2	Seek to achieve optimal geographic distribution of health and social care workforce and consider supply influences, including geographical locations of educational courses.
3	Promote professional development through access to mentoring, Continuous Profession Development (CPD) opportunities, and alternative career pathways.
4	Improve attractiveness of health and social care careers, through the promotion of healthy work-life balance and wellbeing of the workforce.
5	Optimise career pathways for all Health and Social Care workers, including Advanced Practice.
Building Supply	
6	Increase education and training capacity and delivery to meet projected workforce needs while reducing reliance on inward migration and monitoring uptake of roles by nationality.
7	Ensure adequate education and training supports for clinical placements for students across all health-related disciplines, including medicine, nursing & midwifery and the health and social care professions.
8	Develop and promote non-traditional career pathways, including apprenticeships.
9	Increase provision of career guidance and promotion of health and social care careers.
10	Ensure greater diversity in the recruitment of health and social care workers and students entering education.
Optimising Performance	
11	Explore ways to reconfigure service provision to achieve greater efficiencies and effectiveness for workers and patients.
12	Identify and implement programmes to redefine teams and skill-mix, ensure multi-professional delivery of care, enabling health and social care professionals to operate to the full scope of practice and use their knowledge and skills to best effect.
13	Maximise use of digital and technological solutions to support delivery of more effective, efficient, and accessible patient-centred services, and to enhance workforce productivity levels.
Enhancing Strategic Workforce Planning	
14	Complete regulation of health and social care professions designated for regulation.
15	Prioritise implementation of governance framework recommended in Workforce Planning Strategy and Action Plan.
16	Enhance data gathering and sharing to ensure that workforce modelling is based on quality and timely evidence. This includes the need to address specific gaps in data coverage, including the absence of detailed data on vacancy numbers and rates by profession.
17	Strengthen evidence-based approach to workforce planning through ongoing development of workforce supply-demand modelling/forecasting capabilities within the Department of Health and the HSE.
Investment in Workforce Education, Development and Protection	
18	Optimise the utilisation of public funds through innovative workforce policies.

2.6 Communications Activities

Indecon organised a half-day international workshop to present the project and exchange best practices on implementing a strategic health and social care workforce planning approach. This was held online on 7 June 2022. Introductory remarks by Raluca Painter, Head of Unit, DG REFORM and Robert Watt, Secretary General of the Department of Health, followed by seven presentations from International Experts including experts from the WHO, Italy, Scotland, the Netherlands, Sweden, Australia and New Zealand. A panel discussion also including experts from the OECD was held. Approximately 100 people attended, including officials from the DoH, the HSE, international organisations and health and social care institutions from other countries.

The Department of Health organised a half day conference titled, "*Health and Social Care Strategic Workforce Planning*", held on the 18th of January 2024 in Dublin Castle. The purpose of the event was to create awareness of the TSI project outputs and results among a broad range of stakeholders, assisting to achieve outcome 2 as set out in the TSI Project Initiation Report. Over 160 people attended the event representing a broad range of stakeholders, with attendees from the HSE, academic institutions, regulatory bodies, professional bodies, Government departments, Economic and Social Research Institute (ESRI), Higher Education Authority, and Tusla.

After the event, a feedback survey was circulated asking attendees to rate the conference. With a response rate of 30%, respondents gave an average score of 4.5 out of 5, with positive feedback shared around the speakers and format, information provided and networking opportunity.

3. Lessons Learned from Project Implementation

This project represented an approach to assist the Irish authorities to develop the necessary tools, processes and technical capacity to produce rolling health and social care workforce planning models. A number of lessons learned from the project implementation highlighted the success factors and problems encountered. The key lessons learned from project implementation are summarised in the table below.

Table 13: Lessons Learned from Project Implementation

1. Importance of rigorous modelling.
2. Need to consider interrelationships between different healthcare Professions.
3. Benefits of extensive stakeholder consultations to validate results.
4. Value of ensuring sophisticated modelling while also facilitating ease for users.
5. Need for model design to enable testing of policy reforms.
6. Usefulness of maturity assessment and leveraging best practice.
7. Need to take account of the extent of data gaps.
8. When available, existing activity-based demand projections can be a useful input to workforce planning.

1. Importance of Rigorous Modelling

Workforce planning for the Health and Social Care Sector requires rigorous modelling. This implies the need for highly experienced modellers to develop and test modelling outputs. The development of the model benefited from the existing valuable modelling work which had previously been undertaken. This included the Department of Health's system dynamics models for nursing and doctors and the HSE National Doctors Training and Planning (NDTP) model, and the ESRI Hippocrates model. The process of formulating the technical specifications of the model and the analytical methodology used to project demand and supply involved an extensive review of academic and other research to identify options for the most appropriate modelling framework to support effective workforce planning in the Irish health and social care system. The successful output of this extensive research is the newly developed health and social care workforce model.

2. Need to Consider Interrelationship between Different Healthcare Professions

One of the lessons of the modelling is the need to consider the interrelationships between different healthcare and social care workers. For example, the calibration of optimal skill mix and team composition was an important element underlying the assumptions of demand scenario C for this project. The scenario included interrelations between Staff Nurses and Healthcare Assistants and between Health and Social Care Assistants and Health and Social Care Professionals, which allowed estimation of impacts in terms of future projected shortages. This confirms the benefits of the development of improved modelling capacity within the Department of Health. This will enable policymakers to consider the interrelationship between different professions. This has been facilitated by this EU funded project.

3. Benefits of Extensive Stakeholders Consultations to Validate Results

As part of this project, extensive stakeholder consultations were undertaken. This required more resources than originally envisaged. This, however, had major advantages for the project in addressing the gaps in available underlying data and was critical in validating results. This also assisted in securing buy-in to the findings. Indecon are very appreciative to all of the stakeholders who participated in the extensive stakeholder consultations.

4. Value of Ensuring Sophisticated Modelling while also Facilitating Ease for Users

To develop a national integrated health force and social care planning model necessitated the development of a complex model with detailed underlying model parameters and relationships. However, it was also important to build into the model design a system which will facilitate ease for users. This has been integrated into the model design and will greatly increase the value for policymakers. As part of this project user guidance manuals and training sessions have also been organised which have added to the value of the project.

5. Need for Model Design to Enable Testing of Policy Reforms

A key implementation lesson is the need to ensure that model parameter assumptions are included which can enable policymakers to test the impact of policy reforms. For example, to test the impact of productivity improvements. There is also a need for the model to facilitate the testing of alternative policy options to meet the expected gaps between supply and demand.

6. Usefulness of Maturity Assessment and Leveraging Best Practice

The work undertaken in the context of the maturity assessment has been a success factor, although it also presented challenges. The maturity assessment is judged to be a very useful tool to guide researchers and policymakers in the identification of areas for improvement in the existing workforce planning framework. This is based on an internationally recognised methodology and extensive guidance is provided both from the EU and the WHO on the process to undertake this review. The Indecon team undertook a maturity assessment informed by reference to best practice methodologies internationally. Specifically, a blended approach was applied, utilizing the Health Workforce Planning Toolkit developed by the EU Joint Action on Health Workforce Planning and Forecasting (often called the SEPEN toolkit), as well as the relevant modules of the WHO National Health Workforce Account (NHWA). The maturity assessment has been an effective exercise to identify areas for potential improvement, which informed the recommendations included in the Strategy and Action Plan in relation to governance structures, the choice of the modelling framework, and the requirements for future data gatherings.

In addition to the maturity assessment, the WHO framework for action supported the structuring of the recommendations, which was also informed by the literature review undertaken and the international workshop held in the initial phases of the project.

7. Need to Take Account of the Extent of Data Gaps

In Ireland, as in many other countries, existing data availability on some aspects of health workforce supply and demand is sparse and there is a lack of appropriate platforms for accessing data. Data is generally not available for non-regulated professions, private providers, and services provided in the community. Additional data challenges presented for professions that have recently been regulated where the data has not stabilised, or where data collection is sparce, fragmented or non-existent – for example, vacancy data. It is important to emphasise these challenges in obtaining detailed data in certain areas as consideration was needed in terms of how to address these challenges, while also meeting the project objective. Significant improvement in data availability will only be feasible after a number of years and will require investment. Health and social care databases should be linked, subject to appropriate data protection and data-sharing considerations and applicable legislation, to ensure data integration. Stakeholder engagement suggested that legislation may be required to develop comprehensive datasets. These factors will inevitably impact on what is achievable in terms of refinements to the modelling. The model development has, however, been undertaken in a manner which will facilitate additional data being incorporated.

8. When available, existing activity-based demand projections can be a useful input to workforce planning.

Workforce-specific demand modelling proved to be challenging owing to difficulties in collecting an appropriate dataset which allows specialty- or role-specific demand projections for each care setting. However, existing activity-based demand projections can be a useful input to workforce planning. Coupled with employment data by profession and by care setting, activity projections provide a strong basis for workforce projections. Relying on existing demand-side modelling that is already available in some countries may be advisable, also avoiding any duplication involved in building a new workforce-focused demand model.

4. Elements that May be Replicable in Other Countries

4.1 Introduction

It is important as part of EU Structural Reform projects to consider whether any elements of projects could be replicated in other countries or other regions. The Indecon economics team have noted that effective healthcare planning is a critical issue for policymakers in other EU countries. A number of the lessons learned from the project implementation may have implications for what can be replicated in other countries. In addition, a number of key elements for consideration have been identified.

4.2 Elements for Consideration in Other EU Member States

The following table outlines some elements arising from the experience of this project, which could potentially be replicated in other countries and other regions.

Table 14: Elements for Consideration and Potential Replication in Other EU Member States

1. Benefits of an integrated model of different healthcare professions.
2. Potential to leverage existing demand-side modelling.
3. Need to apply maturity assessment methodology.
4. Value of scenario building.
5. Importance of testing of underlying data on existing supply and demand.
6. Value of user-friendly modelling to test policy reforms.

1. Benefits of an Integrated Model of Different Healthcare Professions.

Modelling of the different healthcare and social care professions within an integrated model is likely to be of considerable benefit to other Member States. This is also of potential value on a regional basis. This should be based on an initial mapping of the current position and should be placed within the context of overall health sector workforce strategies and action plans. In terms of specific modelling issues there is merit in following the approach and methodology used for this study which includes stock-flow supply and activity-based demand modelling.

2. Potential to Leverage Existing Demand-side Modelling

As highlighted in the lessons learnt from project implementation, relying on existing demand-side modelling that may be already available in some countries may be a good option for countries where demand-side capacity has been developed, rather than attempting to build a workforce focused model from scratch.

3. Need to Apply Maturity Assessment Methodology

The maturity assessment methodology used in this study is aligned with best practice and builds on valuable work undertaken by the EU and the WHO. Such an approach can be replicated in other countries.

4. Value of Scenario Building

As per all forecasting, there is significant uncertainty. This highlights the value of developing a number of scenarios for alternative workforce demand and supply. This approach could be replicated in other countries and should be informed by empirical evidence.

5. Important of Testing of Underlying Data on Existing Supply and Demand

Data deficiencies were a key challenge of this project. For example, estimates of existing numbers employed in the sub-sectors of the healthcare and social care sector were in some cases not available. In other cases, a range of different estimates were evident. This suggests the need to test the underlying data on existing supply and demand. Rigorous analysis of the quality of the data, triangularisation of estimates from different methodologies, and the validation of estimates with informed stakeholders also proved to be of value. This approach could be successfully used in other countries.

5. Recommended Next Steps

5.1 Implementation Considerations

The proposed implementation steps set out below are designed to provide a roadmap to build on the success of this project and to meet the following requirements:

- The development of a system of rolling action plans prepared on a regular basis following review of the effectiveness of the existing action plan.

- Applying a programmatic and project management approach, which recognises the complex nature of system change, as well as the interdependencies between many of the actions. This approach should include identification of risks and measures to mitigate against them, in addition to identifying critical dependencies.

- Communication and engagement with all relevant stakeholders, to ensure that partners and stakeholders at all levels of the system – sectorally and cross-sectorally – understand work planned and/or underway, their roles in leading or supporting implementation, and the opportunities to feed into and inform the work.

- Building the evidence base so that high quality, complete, and timely data and information and analysis are made available to support workforce modelling and inform decision-making and identification of appropriate policies and strategies.

- Ensuring ongoing monitoring and accountability: Progress on implementing the strategic framework should be monitored by the Cross-Departmental Group, chaired by the Department of Health, with annual progress reports to be submitted to the Minister for Health, as appropriate. In the course of this work, the Cross-Departmental Group could also consider the requirement for periodic strategic reviews of the framework.

Annex 1: Updated Stakeholder Mapping

As part of the work undertaken, a stakeholder mapping exercise was completed. To facilitate further action, an updated stakeholder mapping was undertaken at the end of the project. This shows only minor changes compared to the initial stakeholder mapping that was conducted as part of the inception phase.

Table 15: Updated Mapping of Stakeholders Engaged During Project

Name of Stakeholder
Department of Health
Health Service Executive
Department of Further and Higher Education, Research, Innovation and Science
Department of Children, Equality, Disability, Integration and Youth
Irish Medical Council
CORU
Nursing and Midwifery Board of Ireland
Health Information and Quality Authority
Dental Council of Ireland
Pharmaceutical Society of Ireland
Economic and Social Research Institute
EU Health Workforce Planning and Forecasting Expert Network (SEPEN)
Department of Public Expenditure and Reform
Department of Enterprise, Trade and Employment
Department of Justice (Immigration service)
Department of Education
Department of Social Protection
Higher Education Authority
SOLAS
Public Hospital Groups (seven in total)
Private Hospitals Association
Local Health Offices
TUSLA
Health Research Board of Ireland
Central Statistics Office (CSO)
Community Healthcare Networks
Deans of the Medical Schools
Forum of Postgraduate Medical Training Bodies
Home and Community Care Ireland
Nursing Homes Ireland
Community Healthcare Organisations
Professional Education and Training Bodies and the Higher Educational Institutions
Voluntary Health Insurance Ireland
Irish Life Health Insurance Company
International stakeholders, including WHO and experts from both European and non-European countries

Annex 2: Details of Actions to Improve Data Collection and Data Quality

Table 16: Details of Recommended Actions to Improve Data Collection and Data Quality

Enhance data gathering and sharing to ensure that workforce modelling is based on quality and timely evidence.

Specific measures include:

(i) Develop an agreed core minimum data set to assist in identifying data gaps.

(ii) Leverage the existing legislative framework to enhance data gathering, relevant sharing and use of data for workforce planning purposes.

(iii) Consider opportunities under the Health Information Bill including the planned establishment of a national health data access body (HDAB) and consider how to engage with and benefit from the HDAB services for workforce planning purposes, which are in scope of the Health Information Bill and the European Health Data Space (EHDS) Regulation. Importantly, the scope of the Bill will cover public, private and voluntary settings. Consider, in particular, how the provision of health information (in an anonymised or pseudonymised manner) for these purposes will support a population-based approach to data gathering and data matching across datasets.

(iv) Where required:

- Establish a harmonised and standardised approach between regulators and other data holders to support data gathering and sharing to inform Health and Social Care workforce planning modelling.
- Pursue new data gathering and sharing to address identified data gaps and achieve the granularity and coverage of data needed across healthcare and HSCP professions to enhance the coverage and precision of workforce demand and supply projections. Prioritise establishment of mechanisms to coordinate gathering of data on workforce in the public sector, private sector, and community settings. Care setting categories to include acute hospitals, primary care, mental health, disabilities, and older age. Roles/grades to include medical practitioners: nurses and midwives and Health and Social Care Professionals and Assistants.
- Prioritise the development of population-based data collection systems to facilitate a needs-based approach to workforce planning at both regional and national levels.
- New data gathering should be specifically designed for workforce planning and should take into account, wherever possible, the health system performance assessment framework (HSPA Framework).
- Engage with any regulatory impact analysis regarding the introduction of health service provider identifiers.
- Regulators to continue to enhance registration systems and databases to strengthen data capture and sharing. Department of Health and HSE to collaborate with regulators to identify additional data fields required to inform modelling.
- DoH to collaborate with HSE, CSO, regulatory and professional bodies to address profession-specific specific data gaps, including:
  - Collection and provision by HSE of detailed geographical data on vacancy numbers and rates by profession: across Medical, Nursing & Midwifery, Pharmacy, Regulated and Unregulated HSCPs, Dentists, Healthcare Assistants and Home Support.

Table 16: Details of Recommended Actions to Improve Data Collection and Data Quality

- Number of professionals employed in roles where data is not currently available.
- Number and WTE of nurses and midwives practicing in each specific role, in particular allowing the identification of the role of practice for professionals registered in more than one division of the register.
- Number of regulated HSCP professionals currently practicing.
- Breakdown of flows of HSCPs into and out of the respective professional register. Inflows breakdown to include at a minimum the number joining from the domestic education sector, number joining from foreign education sectors. Outflow breakdown to include, at a minimum, details of the number of professionals retired. Inflows and outflows also to be recorded by age.
- Number of Dentists currently practicing in the profession and broken down by age; breakdown of flows into and out of the register by type of inflows and outflows and by age.
- Number of Pharmacists currently practicing in each of the areas of work currently recorded in the professional register.

- DoH to collaborate with CSO, regulatory and professional bodies, and higher education sector to gather data on student numbers and completion rates, destination of graduates and rates of emigration among different professions and characteristics of these emigrants.
- Enhance the collection and quality of data on activity in non-hospital settings.
- Enhance the measurement of productivity gains by improving the definition and measurement of health and social care workforce productivity and the basis for assessing productivity changes.

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