Galway University Hospital
Emergency Department,
Women's and Children's Development

Strategic Assessment Report Final Report to

Galway University Hospital

11 April 2022

Rev. 1

Building a better working world

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Contents

Glossary

AMAU	Acute Medical Assessment Unit
AMP	Acute Medical Programme
AMU	Acute Medical Unit
ASAU	Acute Surgical Assessment Unit
ASP	Acute Surgery Programme
BCR	Benefits Cost Ratio
CAF	Common Appraisal Framework
CBA	Cost Benefit Analysis
CHG	Children's Hospital Group
CSO	Central Statistics Office
CSS	Clinical Services Strategy
CWMF	Capital Works Management Framework
DBFO	Design Build Finance and Operate
DPER	Department of Public Expenditure and Reform
ECA	Exchequer Cashflow Analysis
ED	Emergency Department
EMT	Executive Management Team
FBC	Final Business Case
FTE	Full Time Equivalent
GDP	Gross Domestic Product
GNP	Gross National Product
GVA	Gross Value Added
HICP	Harmonised Index of Consumer Prices
HCAI	HealthCare Associated Infection
IPDC	Inpatient and daycase
IPLoS	Inpatient Lengths of Stay
JAG	Joint Accreditation Group
KPI	Key Performance Indicator
MCA	Multi Criteria Analysis
MRSA	Methicillin-resistant Staphylococcus Aureus
NCH	New Children's Hospital
NDFA	National Development Finance Agency
NPV	Net Present Value
NTPF	National Treatment Purchase Fund
NZEB	Near Zero Energy Building
ODMS	Oncology Drug Management System
OPD	Outpatient Department
PBC	Preliminary Business Case
PCRS	Primary Care Reimbursement Service
PET	Patient Experience Times
PG	Pay As You Go
PSC	Public Spending Code
QALY	Quality-adjusted Life Years
SAR	Strategic Assessment Report
THI	Trinity Health Ireland
UEL	Useful Economic Life
WTP	Willingness To Pay

EXECUTIVE SUMMARY

EY has been engaged by the Health Service Executive (HSE, 'the client') through HSE Estates (West) to produce a Strategic Assessment Report for a proposed new Emergency Department and Women's & Children's Development (ED W&C) for Galway University Hospitals (GUH) at University Hospital Galway (UHG), in accordance with the Public Spending Code. UHG is the sole Model 4 Tertiary Referral Hospital for the Saolta University Hospital Group (the Saolta Group).

This Strategic Assessment Report presents the case for the proposed new ED, Women's and Children's Development on the UHG campus. The analysis confirms that the investments embodied in the proposed project are necessary to address significant infrastructure deficits in the ED and W&C departments at GUH, and enable the delivery of better services to the population of Galway and the wider catchment, in line with healthcare policy.

Project rationale

The rationale of the proposed project is to address a number of core infrastructural deficits which currently inhibit quality of services across the Emergency, Maternity and Paediatrics Departments at UHG. Notably:

Emergency Department (ED)

- Very serious patient safety issues exist in the existing ED, and it has been deemed a high-risk element within the Saolta Group
- The existing ED dates back to the 1950's with upgrades over the years, but is not fit for purpose with limited capacity for current volumes of attendances.
- Inadequate privacy and dignity for patients, associated with curtained cubicles, overcrowding and waiting on trolleys in corridors
- Non-compliance with national targets for Patient Experience Times (PET)
- limited Paediatric ED accommodation
- Significant resuscitation capacity deficit to meet emergencies & trauma
- No Clinical Decision Unit (CDU), which would enable the Emergency Medicine team to make safe, timely and economical decisions on patients
- Non-compliance with Irish Association for Emergency Medicine guidelines, Emergency Medicine Programme and other guidelines and standards
- Inadequate infrastructure to cater for women in early stage pregnancy loss
- There are infrastructure limitations for other category of patients, including Gynaecological Oncology and Haematology and patients who require mental health assessment

Maternity

- The existing Women's & Children's buildings date from the 1950s, have no direct access to the ED, are dispersed across the site and are isolated from critical care, diagnostics, theatres and other vital healthcare services
- The Antenatal and Gynaecology areas, which likewise date from the 1950s, are outdated, as are a delivery suite and clinical space added in the 1980s
- Patient flows, infant cubicles, delivery suites, theatres and critical care facilities are all at full capacity, as are Obstetrics and Gynaecology day care outpatient facilities and ambulatory care facilities

- Theatre capacity is inadequate and waiting times exceed the national service plan Key Performance Indicator (KPI), that 85% of adult inpatients should be waiting less than 15 months
- The neonatal unit is inadequate to cater for the Saolta Group catchment. There is no large, local tertiary neonatal unit in the Group to care for premature and critically ill infants, resulting in inability to accommodate transfers from other Maternity units in the Group, and transfers to specialist units in Dublin
- A number of reports on facilities at UHG and best practice confirm that there is an urgent requirement for improved Maternity facilities at the hospital
- The demand for services for Gynaecological care will increase in the future due to Saolta Group-wide Gynaecological Oncology and complex benign Gynaecology tertiary referral. Further increases in demand are expected as Urogynaecology services develop with the availability of new surgical management options, and as new services such as Reproductive Medicine, Menopause clinics, Endometriosis services etc. commence

Paediatrics

- The current Paediatric facilities were built in the 1950s and are situated at a corner of the campus, remote from the ED and Maternity/Neonatal units, creating treatment delays and care constraints
- Facilities such as piped oxygen and suction are either very limited or not available
- Spatial constraints mean that Paediatric inpatients are being cared for in mixed wards, or in some cases in adult wards, in contravention of Children First Guidelines
- Due to lack of day bed spaces, the main Paediatric ward is currently used for day cases, depending on bed availability
- Adolescents are being accommodated in adult beds on adult wards which does not adhere to Children First Guidelines
- Inadequacies in UHG facilities necessitate transfers of cases to Dublin hospitals

Project objectives

ED

A redeveloped ED will improve patient care and experience, and address both current ED risks and recommendations in the National Emergency Medicine Programme (NEMP). The enhanced facility will also address the unmet needs of patients who leave ED presently without been seen, due to long delays and overcrowding in the current ED.

A new ED and Acute floor will allow for better streaming for patients which will improve the patient experience times and adhere to National targets. It will address the serious risks of capacity, lack of privacy and dignity for patients and provide adequate space for patients requiring Resuscitation following Trauma and other Emergencies.

The proposed new Clinical Decision Unit (CDU) will enable the Emergency Medicine team to make safe, timely and economical decisions on patients presenting at the ED. This will optimise the flow and PET of appropriate patients who need some diagnostic or treatment interventions, or a period of observation prior to safe discharge.

Maternity

A new Maternity Department linked to vital clinical support services will address the above-listed deficits with the current facilities, and provide access to emergency care where necessary, thus improving patient outcomes for both women and children. Co-location with other clinical services will contribute to optimal clinical outcomes. New and larger Neonatal

facilities will mean that most transfers to Dublin will be avoided, improving the medical well-being of infants, and reducing the cost and time burden on families.

Paediatrics

A new Paediatric Department with improved adjacencies will:

- Allow for a dedicated Paediatric ward, adolescent beds and ambulatory facilities, located closer to the critical medical infrastructure of the hospital
- Facilitate compliance with best care guidelines for the care and wellbeing of children, while reducing waiting times on an inpatient and outpatient basis
- Allow the age category of children being catered for to be increased up to 16th birthday, in line with international best practice

The expansion of the Paediatric in-patient unit will contribute to the development of UHG as a Regional Paediatric Specialist Centre, in line with the National Model Of Care For Paediatric Healthcare In Ireland. Integrated specialist Paediatric medical networks will be developed in the areas of Cardiology, Respiratory, Allergy, Endocrinology and Neurology. In addition, networks will be developed with tertiary level services in Children's Health Ireland (CHI), which will facilitate the timely repatriation of children as close to home as possible for care.

An expanded and improved Paediatrics Department will be essential for UHG to develop as a satellite site for the New Children's Hospital (NCH). This will contribute further to expansion of the services available at UHG, reducing the level of Paediatric transfers to hospitals in Dublin. The use of clinical networks will ensure an integrated approach for General Paediatric Surgery services. The Saolta Group is working together with the CHI Paediatric Network Team to scope and design transformative healthcare for Paediatrics across the Group. In UHG this will be activated as space is freed up to support theatres and OPD expansion.

Strategic alignment

The proposed project will play a pivotal role in delivering on national and regional healthcare policy, and national and regional development policy. As the sole Model 4 Tertiary Referral Hospital for the Saolta Group, which serves approximately 16.5% of Ireland's population spread over one third of the geographical area of the State, UHG is an integral part of healthcare service delivery in the West and North-West. The proposed project is vital in terms of meeting Tertiary Referral Service delivery targets, including the critical role of Regional Trauma Centre, Regional Cancer Centre, Regional Paediatric and Maternity services, and Cardiac services. It provides secondary, regional, and supra-regional services for HSE West. It is one of the major academic teaching hospitals in Ireland and is attached to the National University of Ireland Galway (NUIG), with strong research education and service delivery links with the university.

In 2019 the Saolta Group engaged KPMG et al. to undertake an Options Appraisal in relation to a future Model 4 Hospital for the region. The Covid 19 pandemic has highlighted the serious infrastructure deficits on the UHG campus, including significant capacity issues. These are reflected in the sustained escalation status of the hospital in relation to Emergency care, and growing waiting lists in relation to scheduled care.

In 2022, in view of the impact of Covid 19 on the healthcare system, the Saolta Group engaged KPMG to reassess the outcome of the 2019 Options Appraisal. The review included a detailed analysis of the previous options, which were appraised against identified criteria including but not limited to patient safety, quality of care, timelines, feasibility and affordability.

The outcome of this reassessment was a recommendation to proceed with the redevelopment of the acute model 4 hospital for the Saolta Group, predominately on the UHG campus, of which the ED W&C block would be an initial priority phase of redevelopment. The elective element of the acute hospital was recommended to be developed on the MPUH campus.

Preliminary demand analysis

Demographics

The catchment population of UHG is approximately 323,000, drawn from the greater Galway, Mayo and Roscommon areas. The population of the wider Saolta Group catchment, for which UHG serves as a tertiary hospital, is estimated at 830,000, or approximately 16.5% of the national population. The population of the West region is projected to grow by almost 9% by the year 2036.

All of the area served by the Saolta Group, with the exception of Galway city which has a young and rapidly growing population, has an old age dependency ratio and a young age dependency ratio above the State average. This creates additional pressures in meeting ever increasing demands for acute hospital services. Demographic projections point to a rapid aging of the population over the coming decades, which will translate into higher demand for healthcare services.

Demand

Current attendances at the ED are approximately 70,000 per annum. Attendances have been growing nationally by 4 – 5 % per annum according to the Emergency Medicine Programme, and this is expected to continue into the future. The proposed project is designed to cater for approximately 90,000 attendances per annum. This increase would be primarily driven by the magnet effect, pent up demand (the existing infrastructure is considered a significant limiting factor on demand) and service developments, combined with the clinical needs of an ageing catchment population. The enhanced facility will also address the unmet needs of patients who leave the ED presently without been seen, due to long delays and overcrowding.

In 2020, 2,614 infants were delivered in UHG, increasing to 2,892 in 2021. It is expected that births will grow to approximately 3,500 per annum in the coming years, as UHG Maternity services provide a number of regional referral services within the Saolta Group, including Foetal Medicine, Placenta Acreta Pathway, and Maternal Medicine for women with complex medical conditions in pregnancy. In addition, some 600 women annually avail of some aspect of Maternity services for miscarriages or ectopic pregnancies.

The Level 2 Neonatal unit in UHG provides regional services to the other four Maternity units in the Saolta Group. In 2019 there were 379 admissions to the unit, rising to 387 in 2020. The current footprint of the unit limits its capacity to receive transfers of premature neonates from across the Hospital Group. This necessitates transfers of a number of complex cases to tertiary Maternity hospitals in Dublin, and resultant separation from the mother and family. The proposed new development would provide some services to reduce transfer numbers, or allow quicker repatriation from Dublin hospitals to Galway, resulting in less travel for patients and families.

The Gynaecology service in UHG manages general Gynaecology for the local Galway area and is a tertiary referral site for complex benign Gynaecology and Gynaecological oncology. Service provision includes emergency care, outpatients, ambulatory care and inpatient services. Approximately 1,500 inpatient and daycase/ambulatory procedures are undertaken per year, 10-15% of which are Gynaecological Oncology cases, along with approximately 7,000 outpatient Gynaecology attendances. In addition, Colposcopy manages over 4,000 attendances per year and HSCP services (Physiotherapy and Nutrition and Dietetics) manage close to 250 referrals per year.

Inpatient numbers in the Paediatrics department in 2019 totalled 3,636. Due to lack of capacity in the inpatient ward, some 432 adolescents (14yrs – 16yrs) were accommodated in other wards in 2021, including mixed gender and adult wards. The adolescent beds in the proposed new Paediatric ward will accommodate these patients, reducing related risks and adhering to Children First Guidelines.

Long List of potential options

Proposed project scope

The proposed ED W&C development will deliver a new six storey acute block on the UHG campus, comprising:

- Ground floor - a new ED including clinical cubicles for Adult & Paediatric Majors, Ambulatory and Resuscitation cubicle, Radiology areas and ancillary support spaces
- 1st floor - a Clinical Decision Unit (CDU), Acute Surgical Assessment Unit (ASAU), Acute Medical Assessment Unit (AMAU) and a Pre-Admission Area/transit area (post ED/ AMU/ASAU) and bereavement suite
- 2nd floor - Labour & Delivery Unit including an alongside Birth unit, Operating Theatres Suite, Maternity Day Assessment Unit, Foetal Assessment Unit, and on-call accommodation. This proposal will bring the quality of accommodation available to women to an appropriate standard to support a positive birth experience, and achieve appropriate levels of access to theatre for scheduled and unscheduled Maternity & Gynaecology services, an issue which has occupied the hospital risk register for many years. It will provide capacity to address the Gynaecology and Gynaecology Oncology waiting lists, and it will support UHG as the designated cancer centre for the region
- 3rd floor - a Level 2 Neonatal unit, Gynaecology inpatients, Gynaecology day ward and centralised staff changing facility
- 4th floor - Ante-Natal and Post-Natal Inpatient departments
- 5th floor - Paediatric Day Ward and Paediatric Inpatient Ward, including additional capacity for adolescents & day cases and supporting aspects of Paediatric Model of Care

The proposal provides for significantly improved physical and co-location linkages and proximity to existing emergency, critical care and diagnostic services in the main hospital. The proposed project will see all these facilities delivered to full fit-out, in a single phase.

Separately, a Temporary ED (TED) under current Emergency Covid-19 legislation & regulations (SI 93 & SI 113) and a new Outpatient Department (OPD) Block are being delivered on the UHG and MPUH campuses respectively, as well as infrastructure improvements to support major developments proposed on the UHG campus. These advance enabling works will support delivery of the ED W&C project in a safe and orderly manner.

Long list of options

A long list of potential options for delivering the required infrastructure was developed, as follows:

Long list of options, description & rationale for inclusion

Option	Description	Rationale for inclusion
1. Do Minimum	No major investment beyond that already committed; ongoing maintenance and minimum required investment to maintain operability	Counterfactual against which other options tested.
2. Do Project	Deliver the proposed project	This is the proposed project, as described above
3. Do Phased Project	New ED delivered; W&C elements completed to Shell & Core with subsequent fit out in a later phase	Delivering the proposed project on a phased basis is worth investigation, given the scale and cost of the project, if Exchequer finances were to become constrained
4. Do Project elsewhere - on campus	Deliver the proposed project on the carpark at the front of the campus	The proposed project is earmarked for an intensely utilised site and involves

Option	Description	Rationale for inclusion
		works to clear the site. An alternative, less intensely used site, such as the surface carpark, is worth investigation, to determine if it is preferable, taking the full range of clinical, cost and other considerations into account
5. Do Project elsewhere - MPUH	Deliver the proposed project on the MPUH campus	The MPUH campus along with the UHG campus forms Galway University Hospitals. MPUH is a less densely occupied campus and has been identified as a potential site for a new elective hospital in Galway
6. Do Alternative – W&C only	Retain TED and build only new W&C facilities on the designated site on the campus	A combination of the Temporary ED currently under construction with new W&C facilities is worth investigation, to determine if the extra cost of a new ED is justified

An option to refurbish existing facilities was investigated but found to be non-feasible due to constraints with the building dimensions and loss of capacity due to compliance with SARI and HIQA requirements.

The long list was subjected to MCA, based on agreed project objectives and weightings, and scores reflecting how each option addressed these objectives. These objectives, weightings and scores were workshopped with a panel of experts comprising the project Steering Group. The resultant scoring and ranking of the longlist is captured in the following table.

MCA weighted scores and ranking of options

Option		MCA weighted score out of 100	Ranking
1	Do Minimum	24.9	6
2	Do Project	83.0	1
3	Do Phased Project	73.4	2
4	Do Project elsewhere - on campus	58.2	3
5	Do Project elsewhere - MPUH	41.4	4
6	Do Alternative – W&C only	35.5	5

Source: EY, in consultation with GUH & HSE Estates

The results indicate that the strongest-scoring options are:

1. Option 2, Do Project, reflecting the coming on-stream of all healthcare benefits in a single phase, on a site with optimal integration and relatively lower planning risk
2. Option 3, Do Phased Project
3. Option 4, Do Elsewhere on Campus

The other options scored relatively poorly. Sensitivity analysis, giving relatively stronger weight to value-for-money over healthcare benefits, did not alter the ranking of the options.

Potential range of costs and benefits

The proposed project is a major investment, involving estimated capital expenditure of in excess of €400 million, and additional operational expenditure of approximately €40 million per annum. Hospital management has identified a number of potential additional revenue

income streams on foot of the proposed project, which can be offset against the increased revenue costs, including:

- Private consultant and patient income
- Increased income relating to private day cases and increased ED-related income, due to increased hospital capacity
- Women's & Children-related claims averted
- Reduced HR costs – improved recruitment and retention - as a result of improved facilities and working environment

Substantial socioeconomic benefits can be expected from the proposed project, in terms of:

ED

- current risks addressed
- improved ED patient experience, reduced waiting times, and resultant reduced inpatient length of stay
- improved care for resuscitation patients due to expanded resuscitation area
- improved facilities for management of bereavement

Women's & Children's department

- increased capacity – inpatient and gynaecological theatres
- reductions in waiting lists due to increased capacity and activity
- higher quality facilities and accommodation
- ability to cater for higher complexity cases
- reductions in HCAIs and laboratory costs
- improved adjacencies with acute care, and centralisation of clinical areas and more efficient utilisation of staff
- reduction in patient costs associated with out-of-Group transfers

Affordability & risks

Affordability

The proposed project is a major investment, involving capital expenditure of in excess of €400 million, and additional operational expenditure of approximately €40 million per annum. It thus represents a significant long-term commitment of funds by the Exchequer. By comparison, the HSE's total capital allocation for 2021 is €983 million.

The HSE 2021 Capital Plan, published under the auspices of Ireland 2040, specifically references the proposed project. Likewise, the project is one of a number of healthcare projects and programmes identified in the recently updated National Development Plan.

Risks

Delivery risks for a project of this size and complexity are potentially substantial. In order to identify the likely delivery risks and the actions required to mitigate against them, GUH management/HSE Estates have developed a design risk register and a clinical risk register, and will maintain this over the course of the project lifecycle.

Lessons learned from ex-post evaluations of previous similar projects

GUH management and HSE Estates are proactively taking into account the experience with recent ED developments at University Hospital Limerick and the Mater Hospital Dublin, and are incorporating these learnings into the project design. Likewise, GUH management indicates that the lessons learnt from the NCH experience will be incorporated into the processes for delivering the proposed project, as follows:

- The project will use standard government contracts, via the Capital Works Management Framework (CWMF) and procurement process (NCH used a bespoke contract)
- Project design will be fully finalised before the project goes to tender (NCH went to contract with an incomplete design)

Appraisal Plan

Should the proposed project be granted Approval to Develop the Proposal (Decision Gate 0), it will progress to the next stage in the project lifecycle, the Preliminary Business Case (PBC). The key purpose of the PBC is to determine the optimal option for delivering on the project objectives, which would then go forward for detailed design and tendering, under the Final Business Case (FBC) stage. Tasks in the PBC include:

Deriving short-list from the long-list of options

The MCA will be repeated, based on the up-to-date understanding of the project. From this will emerge a shortlist, to go forward to Options Appraisal.

Options Appraisal

Cost Benefit Analysis (CBA) would be undertaken, to determine the strongest-performing option among the shortlist. CBA comprises both a financial appraisal and a socioeconomic appraisal. The financial appraisal would evaluate the options from the perspective of Exchequer cashflow, i.e. the cost and benefits of the project to the public purse. Evaluation would be over 30 years and the public sector borrowing rate would be used to discount future cashflows. It can be expected that the financial appraisal will generate a negative outcome, since the benefits are mostly of a socioeconomic nature, and are not captured via patient charges.

The socioeconomic appraisal incorporates the wider social and economic benefits of the options, mainly patient health benefits. It also incorporates the shadow price of public funds, capturing the cost to the economy of raising project funding in terms of taxation and/or borrowing. Cost and benefit flows will be discounted at the social discount rate.

A number of KPIs will be generated by the CBA, the most important of which will be Economic Net Present Value (ENPV). This captures the net benefit to society of the proposed project and the alternative shortlisted options, and identifies the strongest-performing option.

Pricing risk and factoring in Optimism Bias

Delivery risk is a significant issue with large, complex projects such as the current proposal. Among the considerations under this heading are design risk and planning risk. These will be addressed by GUH management allocating appropriate internal resources to the project, and by engaging experienced project design and project delivery teams. Full implementation of the Public Spending Code, as well as use of appropriate detailed project implementation guidance, is provided by the Office of Government Procurement (OGP) in the CWMF, which will mitigate project risk. A design Risk Register has also been developed and will be kept up-to-date and will inform the project team throughout the project lifecycle.

Optimism Bias refers to the propensity for project promoters and analysts to overestimate the benefits associated with a project (e.g. over-estimating the demand for the new facilities) and underestimate both project costs (investment and operational) and delivery timelines. The steps taken to mitigate risk and to learn lessons from previous projects – as well as sensitivity analysis as part of the options analysis - will be important in addressing Optimism Bias. International guidance on dealing with Optimism Bias will also be reviewed and applied as appropriate.

Outline Governance Plan

Sponsoring Agency and Approving Authority

The Sponsoring Agency for the proposed project is the HSE. The Approving Authority, on the basis that the capital cost will be more than €100 million, is the Government, in effect the Department of Health. As the project is expected to cost more than €100 million, the Department of Public Expenditure and Reform (DPER) would also have a review role at each stage of the project life cycle, and would produce a review report that would feed into the approval process.

Key project structures, project roles, and responsibilities

The key personnel and roles within the project management structure for the proposed project have been identified. A project Steering Group has been appointed, comprising key management and clinical staff, and key Saolta Group and HSE Estates personnel. A project development and delivery timeline has been compiled, setting out the key stages from now to completion of the project delivery.

Conclusions

This Strategic Assessment Report presents the case for the proposed new ED, Women's and Children's Development on the UHG campus. The analysis confirms that the investments embodied in the proposed project are necessary to address significant infrastructure deficits in the ED and W&C departments at GUH, and enable the delivery of better services to the population of Galway and the wider catchment, in line with healthcare policy. Accordingly, the Sponsoring Agency recommends that the Approving Authority grants Approval to Develop the Proposal for the project, which would bring it to the next stage in the project lifecycle, i.e. the Preliminary Business Case.

1. Introduction

EY has been engaged by the Health Service Executive (HSE, 'the client') through HSE Estates (West) to produce a Strategic Assessment Report for a proposed new Emergency Department and Women's & Children's Development (ED W&C) for Galway University Hospitals (GUH) at University Hospital Galway (UHG), in accordance with the Public Spending Code.

1.1 GUH & Saolta Group

GUH comprise the UHG and Merlin Park University Hospital (MPUH) campuses and are part of the Saolta University Health Care Group (Saolta Group). UHG is the sole Model 4 Tertiary Referral Hospital for the Group. The Saolta Group serves a population of approximately 830,000, and provides acute and specialist hospital services to the west and north-west of Ireland, including counties Galway, Mayo, Sligo, Donegal, Roscommon, Leitrim and parts of adjoining counties[1]. Geography is a major challenge for the Group, as the population is dispersed and rural, with approximately one sixth of the national population spread across one third of the land area of the State.

Figure 1: Area served by Saolta Group

Source: HSE[2]

UHG is a Level 4 hospital, delivering emergency/theatre services, critical care, Maternity, Neonatal & Paediatric and a wide range of Tertiary Referral services. The hospital is a designated supra-regional centre for Cancer and Cardiac services. It provides secondary, regional and supra-regional services for HSE West and North-West, is one of the major academic teaching hospitals in Ireland, and is attached to the National University of Ireland Galway (NUIG), with strong research, education and service delivery links with the university. MPUH is a Level 2 Hospital delivering non-complex elective medical, surgical and OPD Services. GUH currently has 683 inpatient beds and 4,333 staff (2021).

[1] https://www.saolta.ie/sites/default/files/publications/Saolta%20Group%20Strategy%202019-23_FINAL%20WEB.pdf
[2] https://www.hse.ie/eng/services/publications/serviceplans/service-plan-2018/operational-plans-2018/saolta-university-health-care-group-operational-plan-2018.pdf

Figure 2: Map of Galway, marking University Hospital Galway and Merlin Park University Hospital

Source: Google Maps

1.2 Strategic assessment

This Strategic Assessment Report is produced in accordance with the Public Spending Code, which was comprehensively updated by the Department of Public Expenditure and Reform (DPER) in 2019[3]. While maintaining the focus on appraisal from the previous Code, the new Code:

"broadens to highlight the importance of rigorous project preparation, earlier engagement with aspects of design, and delivery, more informed approaches to costing and fuller consideration of risk. There is also a greater focus on affordability and financial feasibility."

The Public Spending Code sets out six stages in project lifecycle, incorporating both ex-ante and ex-post elements, of which Strategic Assessment is the first:

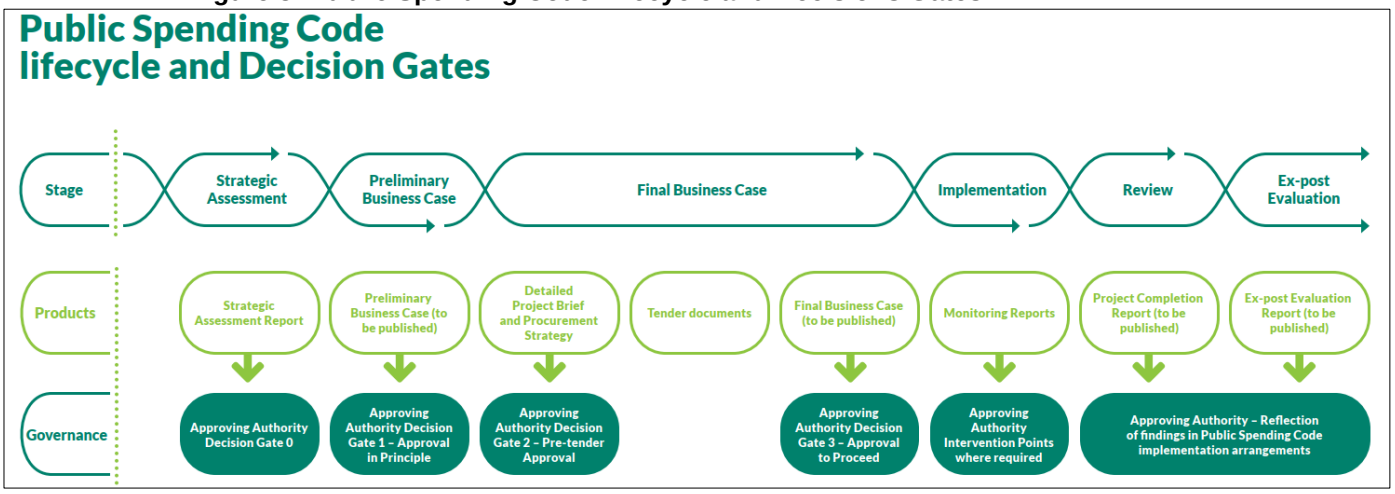
1. Strategic Assessment Report (SAR)
2. Preliminary Business Case (PBC)
3. Final Business Case (FBC), including design, procurement strategy, and tendering
4. Implementation
5. Review
6. Ex-Post Evaluation

The Code indicates that the Strategic Assessment stage of the project lifecycle:

- is critical for early scrutiny of objectives, consideration of options, and identification of risks
- must critically examine the specific problem to be addressed
- forms an important element of the bridge between the policy and the project
- must happen as early as possible in the concept phase of a proposal to meaningfully inform key decision points, and
- should be informed by lessons learned on earlier schemes

[3] DPER, 2019, *Public Spending Code - A Guide to Evaluating, Planning and Managing Public Investment* https://assets.gov.ie/43560/1ac8bb5e81304861afc5a6c6c10d733a.pdf

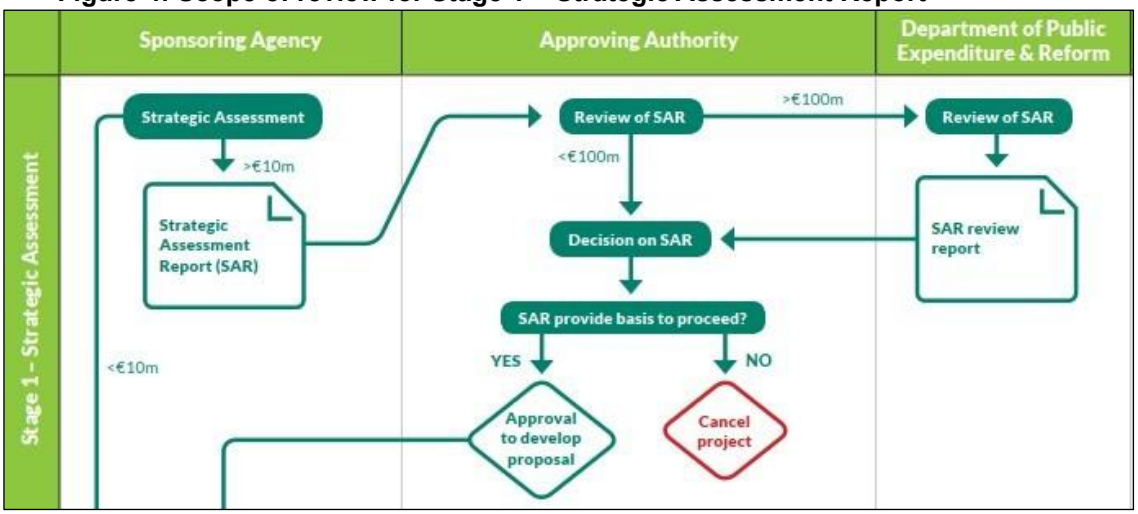
Figure 3: Public Spending Code Lifecycle and Decisions Gates



A key part of finalising the Strategic Assessment stage is the review by the relevant authorities, which if successful leads to Approval to Develop the Proposal. Project approval from the relevant authorities is required at "decision gates" at different stages of the project lifecycle, as follows:

- SAR (Decision Gate 0)
- PBC (Decision Gate 1)
- and FBC (Decision Gates 2 and 3)

Figure 4: Scope of review for Stage 1 – Strategic Assessment Report



The scope of the review is influenced by the cost of the project, with different paths depending on whether the project costs less than €10 million, between €10 and €100 million, or over €100 million. For a project costing less than €100 million, the Approving Authority can give Approval to Develop the Proposal without reference to the Department of Public Expenditure & Reform (DPER). For projects expected to cost over €100 million, DPER is required to review the SAR and produce a SAR Review Report, which feeds into the Approving Authority's decision process[4]. Since the proposed project is expected to cost more than €100 million, DPER will have a direct role in the review process and provide feedback to the Approving Authority.

[4] Under a circular published in November 2021, the DPER reviews at decision Gates 1 and 2 will in practice be undertaken by external experts, with scope for external review to happen also at Decision Gates 0 and 3, at the Funding Department's discretion. https://assets.gov.ie/204832/05d248fe-6245-44ca-9659-f0d2aaa8b853.pdf

1.3 Report structure

As described in the following table, the structure of this report aligns with the Public Spending Code for the contents of a SAR, as set out on page 20 of the Code. An Executive Summary is also provided at the start of the report.

Table 1: Delivery of Public Spending Code requirements for SAR

Public Spending Code requirement for SAR	Chapter in this report		Content
• Investment rationale • Objectives • Strategic alignment with government policy – in particular, the National Planning Framework and National Development Plan	2	Project rationale, objectives & strategic alignment	Sets out the rationale for the project, objectives to be achieved, and strategic alignment with government policy
Preliminary demand analysis	3	Preliminary Demand Analysis	High level analysis of current and forecast future demand for the services to be provided.
The long-list of potential options	4	Long list of potential options	Arriving at the list of all feasible options that could deliver the desired outcomes, presents a description of the proposed project
• The potential range of costs involved, both financial and economic • An assessment of affordability in the context of available resources (including the Medium-Term Capital Envelope in the case of Exchequer funded proposals) • An identification of risks • A framework for determining key performance indicators for the proposed intervention such as a logic path model	5	Costs, affordability & risks	• Assessment of the potential range of costs • early assessment of affordability and sources of funding • high level assessment of risks and mitigation steps • lessons learned from ex-post evaluations of previous similar projects • Logic path model framework
An appraisal plan	6	Appraisal plan	• Sets out how the project will be appraised, including the proposed methodology for deriving the short-list of options, options appraisal, and pricing risk • Details of data to be used, assumptions made, and technical parameters
An outline governance plan	7	Outline governance plan	Identifies the Sponsoring Agency and Approving Authority, sets out key project structures, considers project roles and responsibilities.
	8	Conclusions	Summarises the findings of the SAR

2. Project Rationale, Objectives & Strategic Alignment

The rationale and justification for the proposed ED W&C project are to address the serious deficiencies in the current Emergency, Maternity and Paediatrics departments on the UHG campus, and provide modern, fit-for-purpose facilities to enable UHG to fulfil its role within the Saolta Group and serve the local population of Galway and the regional catchment.

A key purpose of the SAR is that the strategic case for the proposal is explored in full and understood by all stakeholders. This chapter sets out:

- Rationale for the project, i.e. the problem it seeks to solve
- Objectives to be achieved
- Project history and milestones to date
- Strategic alignment with government policy, in particular the National Planning Framework and the National Development Plan, as well as sectoral policy and climate action policy
- Letters of support for the project from key stakeholders

2.1 Project rationale

The basic rationale for the proposed ED W&C project is to address the serious risks, quality issues and spatial constraints associated with the current facilities on the UHG campus, with regard to Emergency Medicine, Maternity and Gynaecology, and Paediatrics. The key issues with each are discussed below.

Emergency Department

The main deficits in the current ED include:

- Inadequate footprint for current volume of attendances
- Non-compliance with National Standards, Infection Control, Emergency Medicine Programme, Irish Association for Emergency Medicine guidelines
- Lack of Isolation Facilities
- Inadequacies in providing privacy and dignity for patients attending ED, associated with overcrowding and consequently waiting on trolleys in corridors
- Significant Resuscitation Capacity Deficit
- Poor Patient Experience Time
- Increased inpatient length of stay as a result of increased ED waiting time
- Limited Paediatric ED accommodation
- Inadequate private space for women experiencing early pregnancy loss

Figure 5: ED complexity of care

Source: GUH

The increasing trajectory of ED attendances in inadequate facilities is aggravating congestion. This leads to longer time spent in ED, which research has shown results in increased length of stay for those patients admitted, and increased morbidity and mortality. This leads to competing demands between scheduled care and unscheduled care, and impacts on the operational performance and capability of the hospital.

On its recent visit to GUH the National Emergency Medicine Programme (NEMP) highlighted the development of Emergency Care Networks to deliver high quality care to patients, as a key element of the Model of Care recommended by the Emergency Medicine Programme (2021), (EMP). This involves a 24/7 ED with direct clinical governance and necessary supporting links to satellite units. The aim is to ensure that unscheduled care can be delivered locally as safely as possible, while having systems in place that ensure quality of care is of a high standard. In the current environment this is difficult to deliver at GUH.

Acute Surgical Assessment Units (ASAU) are an integral part of the National Clinical Programme (NCPS) 2013 “Model of Care for Acute Surgery”, with the aim of improving patient flow and providing better access to assessment, investigation and senior decision-makers. This allows rapid streamlining of patients, leads to better care and a shorter length of stay, a more positive experience for the patient, fewer complications and a lower mortality rate. Current infrastructure requirements have led to utilisation of the ASAU at UHG as additional ED space.

At present, no isolation rooms are available within the ED. A temporary ED currently under construction on the campus will deliver some improvement in this regard as well as improving segregation. The construction of extra capacity for isolation rooms is expected to have a beneficial effect on health outcomes and infection control, with a significant reduction in HealthCare Associated Infections (HCAIs).

Approximately 32% of UHG’s inpatient throughput is currently via the ED. Very serious patient safety issues exist in the existing ED, and it has been deemed a high-risk element within the Saolta Group. Of particular concern is ED Patient Experience Time (PET). The national target for PET is that 95% of all patients are seen, and admitted or discharged within

6 hours, and that 100% of ED patients should be dealt with within 9 hours[5]. In 2020 UHG's ED only achieved 13% and 44% respectively for these metrics[6].

Patients presenting at ED are regularly cared for on corridors. There are no isolation and infection control facilities available, which increases the risks to other patients and staff. The resuscitation facilities are inadequate, often resulting in patients being assessed and treated in cubicles adjacent to the Resuscitation area. The capacity for Paediatric patients is limited with no separate triage area for these patients.

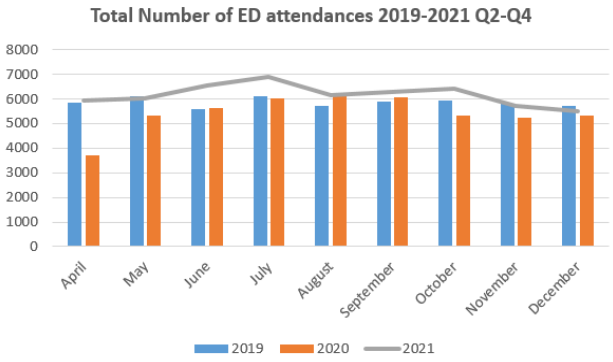
A redeveloped ED and acute floor, as per the proposed project, will improve patient care and experience, and address both current ED risks and recommendations in the National Emergency Medicine Programme (NEMP)[7]. The enhanced facility will also address the unmet needs of patients who leave ED presently without been seen, due to long delays and overcrowding. Increased attendances are predicted with a new facility.

Currently, annual ED attendances are approximately 70,000, and were growing at 4% per annum prior to the Covid-19 pandemic, in line with other major EDs around the country. It is expected that this growth rate will recommence once the pandemic is over.

The Special Delivery Unit (SDU) and Performance Management Improvement Unit (PMIU) have noted in their October 2021 audit report for ED GUH that there are significant increases in ED attendances year to date nationally. This is placing UHG, in common with other acute hospitals, under extreme pressure, with attendances predicted to rise further. Data from the Business Information Unit (BIU) 2021 indicates that month-on- month comparisons between June, July and August 2019 and the same months in 2021 show attendance increases of +20%, +17% and +12% respectively (EMP report 2021).

Figure 6: Total Number of ED attendances 2019-2021 Q2-Q4

		Year		
	Month	**2019**	**2020**	**2021**
Q2	April	5851	3716	5952
	May	6122	5321	6037
	June	5605	5631	6540
Q3	July	6124	6026	6899
	August	5731	6110	6173
	September	5905	6051	6291
Q4	October	5916	5333	6422
	November	5827	5235	5736
	December	5725	5326	5514



Source: GUH

The following table sets out the infrastructure requirements to cater for 90,000 ED attendees, the design capacity for the proposed development, compared to the current infrastructure. Serious deficits are apparent across almost all criteria.

[5] HSE, 2012, *The National Emergency Medicine Programme A strategy to improve safety, quality, access and value in Emergency Medicine in Ireland*, referenced in https://www.imo.ie/news-media/publications/Compliance-PP.pdf
[6] In view of the shortcomings of existing facilities, UHG set an internal target of 95% of patients over 75 years of age to be discharged or admitted within 6 hours, in order to focus attention on the most vulnerable patients; the hospital achieved 27% for this cohort in November 2019.
[7] HSE, 2012, Op. Cit.

Table 2: Primary infrastructure requirements to cater for 90,000 ED attendees compared to the current infrastructure, by reference to IAEM (2007)[8]

IAEM Main ED Areas (IAEM 2007)	**IAEM minimum requirements**	**Current**	**Target Size (m^2)/ Recommendation for 90,000**
Waiting area	4.4m^2 / 1,000 attendances per annum	59m^2	91m^2*
Paediatric waiting area	6m^2 / 1,000 attendances per annum	10m^2	58m^2*
Triage / Assessment cubicle	16m^2	16m^2	16m^2
Paediatric Triage / Assessment cubicle	16m^2	none	16m^2
Minimum number of Resuscitation cubicles	1/10,000	2 cubicles	9 cubicles
Near patient testing area	8.5m^2	none	8.5m^2
Clean utility / drug preparation	14m^2	7.5m^2	14m^2
Dirty utility for resus	12m^2	7.5m^2	12m^2
Minimum number of patient treatment cubicle	1/1,100 attendances or 1/400 admissions whichever is greater	12 no.	81 no.
Standard patient treatment cubicle	16m^2	7m^2	16m^2
Standard Paediatric patient treatment cubicle	16m^2	7m^2	16m^2
Ambulatory care area cubicle	16m^2	8.4m^2	16m^2
Room for disturbed patients	16m^2	none	16m^2
Isolation rooms	2 or 1/10,000 attendances	2	9
Viewing room	10m^2	10m^2	10m^2
Relatives room	16m^2	none	3 x 16m^2
Staff base	1m^2 /1,000 patient attendances per annum	32m^2	90m^2
ED beds for Observation Medicine / Clinical Decision Unit	1/ 5,000 attendances	None	18.0
ENT / Ophthalmology room	16m^2	10.5m^2	16m^2 x 2
Plaster room	16m^2	7.75m^2	16m^2
Gynaecological room	16m^2	None	16m^2
Medical gas cylinders	9m^2	None	9m^2
Ambulance equipment	6m^2	None	6m^2
Planning, circulation and engineering allowances will need to be added to the total floor areas in addition to above specifications			

*A new ED and Acute floor will allow for better streaming for patients which will reduce the overall waiting areas required. Source: GUH/HSE Estates

[8] Irish Association for Emergency Medicine (IAEM), 2007, Standards for Emergency Department Design and Specification for Ireland. https://iaem.ie/wp-content/uploads/2013/02/iaem_standards_for_ed_design__specification_for_ireland_300907.pdf

The proposed will also deliver a new Clinical Decision Unit (CDU). This will enable the Emergency Medicine team to make safe, timely and economical decisions on patients presenting at the ED. It will also optimise the flow and PET of appropriate patients who need some diagnostic or treatment interventions, or a period of observation prior to a safe discharge.

Separately, there is an urgent need to develop community-based facilities in Galway city and catchment. In time, services are expected to shift to such facilities, but in Galway it will take a significant period of time to build up the resources and services in primary and community healthcare before the ED will be able to focus provision on more appropriate acute patients. This is particularly challenging in Galway city due to the lack of suitable sites and properties in the city and environs. Healthcare is also having to compete with other sectors of the economy for these sites and buildings.

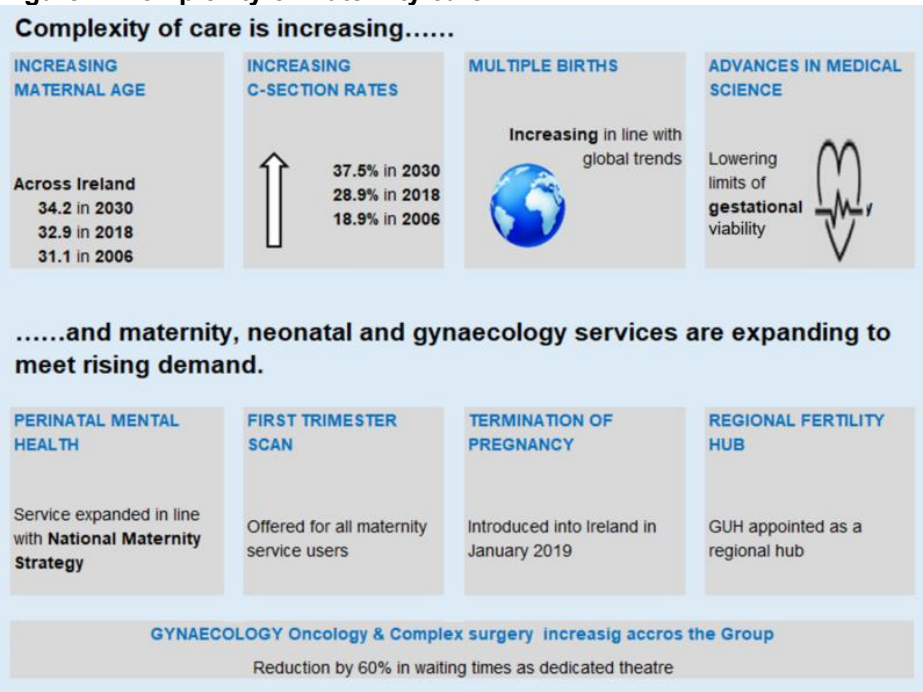
Community Healthcare West is focussing on Older Persons, Chronic Disease management (Cardiology, Respiratory and Diabetes), diagnostics and community healthcare networks. This will ensure that discharge from Acute Hospitals is co-ordinated to ensure people can return to their home environments as soon as possible.

Delivery of these much-needed community-based facilities will not obviate the necessity for the proposed project, given the degree of deficiency in current GUH facilities, and the hospital's regional and national role.

Maternity

UHG is the Saolta Group's designated tertiary referral centre for Maternity, Gynaecology, Paediatric and Level 2 Neonatology services across the region. The rationale for the development of a new Maternity department above the proposed ED is founded on the environmental quality issues, spatial constraints, and lack of key facilities in the existing infrastructure.

Figure 7: Complexity of Maternity care



Source: GUH

In particular:

- The existing Women's & Children's buildings on the UHG campus –

- date from the 1950s
- have no direct access to ED
- are dispersed across the site,
- are isolated from vital healthcare services such as critical care, diagnostics, and theatres, and
- have limited ability to cater for high complexity cases

- The Antenatal and Gynaecology areas, which were likewise constructed in the 1950s, are outdated, as are a delivery suite and clinical space which were added in the 1980s
- Currently there is only one theatre on the Gynaecology ward, which services both emergency and elective Gynaecology and Obstetrics patients. Having access to only one theatre poses a significant risk for the safety of women and babies and places limitations on the volume of scheduled Gynaecology care that can be performed leading to extended waiting lists. The proposed project, which includes three theatres, will address the risks of access for mothers and babies, and improve ambulatory and inpatient throughput, resulting in a more efficient and effective service for Maternity and Gynaecological patients
- Spatial constraints have resulted in overcrowding in patient areas for women and babies, limited numbers of bathroom and toilet facilities available for women, a rise in the number of HCAI outbreaks and inability to progress minor building improvements
- Cot capacity in the Level 2 Neonatal unit needs to be enlarged in order to meet the Level 2 Neonatal requirements within the Group. The five Maternity units within the Saolta Group handle approximately 10,000 deliveries per annum. Cot capacity constraints in UHG result in transfers to Dublin for clinical care that should be available closer to home

A number of reports on best practice in Maternity care, including the Sir Sabaratnam Arulkumaran Report[9], HIQA Reports 2013[10] and 2018, and the National Clinical Care Programme in Obstetrics and Gynaecology[11], have highlighted that there is an urgent requirement for improved Maternity facilities at UHG. A new Maternity Department linked to vital Clinical Support services will address these issues and provide access to emergency care where necessary, improving clinical outcomes for both women and children[12] [13].

The proposed project will enable UHG to realise this objective. The Neonatal unit needs to be enlarged in order to cater for the Neonatal population of the Saolta Group. There is no large, local tertiary Neonatal unit in the Group to care for premature and critically ill infants. At times, UHG is not in a position to accommodate transfers from other Maternity units in the Saolta Group. Existing inadequacies mean that neonates requiring level 3 care (e.g. infants under 27 weeks gestation) are often transferred to specialist units in Dublin.

[9] Final Report of the Investigation of Incident 50278, from the time of the patient's self-referral to hospital on the 21st of October 2012, to the patient's death on the 28th of October 2012. HSE, June 2013.
[10] Investigation into the safety, quality and standards of services provided by the Health Service Executive to patients, including pregnant women, at risk of clinical deterioration, including those provided in University Hospital Galway, as reflected in the care and treatment provided to Savita Halappanavar, HIQA, October 2013.
[11] https://www.rcpi.ie/faculties/obstetricians-and-gynaecologists/national-clinical-guidelines-in-obstetrics-and-Gynaecology/
[12] Department of Health, 2016, *Creating a Better Future Together: National Maternity Strategy 2016-2026*, http://health.gov.ie/wp-content/uploads/2016/01/Final-version-27.01.16.pdf
[13] *Model of Care for Neonatal Services in Ireland, National Clinical Programme for Paediatrics and Neonatology, 2015.* http://www.hse.ie/eng/about/Who/clinical/natclinprog/paediatricsandneonatology/Neonatal%20Services%20in%20Ireland.pdf

Gynaecology

Development of Gynaecology Services is a priority for the Department of Health, HSE via the National Women's and Infants Health Programme (NWIHP) and the Saolta Group, and thus for UHG. Specifically, new facilities will need to deliver:

- Additional infrastructure required to enable the Gynaecological Oncology service to meet the National Cancer Care Programme (NCCP) Cancer Key Performance Indicators (KPIs), and provide a Group-wide service
- Capacity to manage the increasing demand for general Gynaecological surgical cases. Currently the shared Obstetrics and Gynaecology theatre means that Obstetric surgery is often prioritised over minor Gynaecology procedures. New models of care in Gynaecology (e.g. post-menopausal bleeding investigation) have clear timeframes for management, so the new infrastructure will need to consistently give the capacity to manage patients who require daycase or inpatient surgical procedures within the required timeframes
- The release of capacity in the current Maternity Unit for new and developing services such as Reproductive Medicine, Menopause Clinics, Endometriosis service, Colposcopy, Ambulatory Gynaecology, Urogynaecology and general Gynaecology outpatients
- An appropriate environment in the ED for managing patient presenting with early pregnancy loss and termination of pregnancy complications

Inadequate Gynaecology theatre capacity is resulting in increasing waiting times – as of February 2022 there were 383 patients on the waiting list for elective Gynaecology procedures, with 81 patients waiting more than 15 months and 15 patients waiting more than 36 months. The national service plan KPI for waiting times is that 85% of adult inpatients should be waiting less than 15 months.

Approximately 7,000 outpatients were seen in Gynaecology clinics in UHG, and just under 1,500 inpatient, daycase and ambulatory procedures were undertaken in 2020; of these, 10-15% were Gynaecological Oncology cases. In addition, Colposcopy managed over 4,000 attendances, and HSCP services (Physiotherapy and Nutrition and Dietetics) managed close to 250 new referrals, in 2020.

Further increases in demand are expected as:

- the need for Group-wide Gynaecological Oncology and Complex Benign Gynaecology tertiary referral is addressed
- Urogynaecology services develop, with the availability of new surgical management options, and
- new services such as Reproductive Medicine, Menopause clinics, Endometriosis services etc. commence

Paediatrics

The need for a new Paediatrics Department with direct linkages to the Emergency and Maternity Departments is similarly pressing, as the current facilities, built in the 1950s, are ageing and situated at a corner of the campus, remote from the ED and Maternity/Neonatal units. This creates delays and care constraints, while facilities such as piped oxygen and suction are either very limited or not available. Spatial constraints have resulted in Paediatric inpatients being cared for in mixed children's wards, or in some cases in adult wards. Furthermore:

- Due to lack of day bed spaces, the main Paediatric ward is currently used for day cases, depending on bed availability
- Adolescents are being accommodated in adult beds on adult wards, which does not adhere to Children First Guidelines

A new facility with improved adjacencies will:

- allow for a dedicated Paediatric ward, adolescent beds, and ambulatory facilities, located closer to the critical medical infrastructure of the hospital
- facilitate compliance with best care guidelines for the care and wellbeing of children, while reducing inpatient and outpatient waiting times
- allow the age range of children being catered for to be increased from 14 to 16 years, in line with international best practice

An expansion of the Paediatric Unit will support the development of UHG as a Regional Paediatric Specialist Centre. This will facilitate the expansion of specialist services and an increase in shared services between Children's Health Ireland (CHI)[14] and UHG, resulting in the repatriation of children from Dublin for care as close to home as possible.

By way of capturing the deficit in the current facilities, the following table sets out a comparison of current Maternity and Paediatric facilities, compared to those in the proposed new facility:

Table 3: UHG Maternity & Paediatric Departments, present vs. project proposal

Location	Current	Project proposal
Ante Natal Ward*	18 beds	24 beds
Maternity Day Assessment Unit (MDAU)	4 beds & 2 chairs	6 beds
Foetal Assessment Unit	4 scan rooms	4 scan rooms & 1 Counselling / examination room
Labour / Delivery	7 delivery suites, 1 - 2 bed triage area, 1 Emergency Delivery room	Reception, 2 assessment areas, 8 Standard Delivery rooms & 4 incorporated in a Home from Home unit with 2 Birthing pool and 2 large delivery rooms
Operative Delivery Section	1 Theatre	3 Theatres, 3 Anaesthetic rooms, 2 recovery rooms, Reception area
Post Natal **	30 beds	27 beds
Gynaecological in patient	15 beds	14 beds
Gynaecological Day cases	4 bays	8 bays
NICU	17 but staffed for 14 neonates	28 cots, ICU - 8 & 2 Isolation, HDU - 6, Special Care Cots - 10, 2 Isolation ICU & 2 Isolation HDU
Paediatric In Patients	32 beds in total: 11 cots in the infant section (0-toddler) 13 beds in the middle (5 single rooms 2x 4 bed wards in the middle section (from toddler to 14 years)	38 beds. infant / Toddler - 14, Preschool - 6, primary school - 8, adolescent - 8, Airborne isolation - 2, bed High dependency room/ Close observation ward - 2 bed

[14] https://childrenshealthireland.ie/

Location	Current	Project proposal
	8 beds the end section (for a mix of all ages, two of which are en-suite rooms for use as required by CF patients	
Paediatric Ambulatory	3 trolley	4 bed & 2 bed & 2 single rooms = 8

*Ante natal beds are increased as there will be transfers of complex cases within the Saolta Group. ** Post-natal are reduced as the early Transfer Home service is reducing length of stay for postnatal women. Source: GUH management

2.2 Project objectives

In summary, the project objectives are to:

- Provide a hospital block which will provide optimum and holistic care for patients
- Provide a new and expanded ED and Acute Floor, directly connected to maximise integration with the main hospital critical care and diagnostics, to provide optimal clinical efficiencies in hospital care
- Optimise access to services in ED, AMU, ASAU, Maternity, Neonates, Gynaecology and Paediatrics
- Provide a new CDU and increase the assessment spaces in Acute Medical Unit (AMU)/Acute Surgical Assessment Unit (ASAU)
- Improve patient flow and streaming from ED to the CDU, optimising the flow and PET of patients who need some diagnostic or treatment interventions, or a period of observation, prior to a safe discharge
- Facilitate streaming of appropriate patients to the AMU and ASAU
- Address the risks associated with the existing ED, particularly the issue of over-crowding, the lack of capacity to deal with HCAI outbreaks, in particular Covid 19, and the inability to stream attendances appropriately through the unit
- Provide privacy and dignity for all patients attending ED
- Provide new Maternity facilities to address deficiencies in existing provision, and build capacity for the provision of a regional service in line with the model of care, including significant issues regarding patient safety, quality of care, protecting women's privacy and dignity, and reducing the number of HCAI outbreaks
- Provide new Gynaecology facilities, including additional access to theatre for benign and complex Gynaecology, which will be instrumental in addressing the waiting lists for Gynaecological surgery
- Provide additional Gynaecology theatre and bed capacity to manage increased demand for Gynaecological Oncology and complex benign Gynaecology from across the Saolta Group
- Provide appropriate accommodation for children up to their 16th birthday, addressing safeguarding risks and complying with Children First recommendations
- Release capacity in the current Maternity Unit for additional outpatient and ambulatory Maternity and Gynaecology services, Paediatric outpatient and surgical services
- Provide an adolescent area and High Dependency area in the Paediatric Departments, to address the risks related to the current facilities

- Maximise the potential of a strategically important site on the UHG campus to address long term clinical requirements
- Provide space to alleviate the most critical clinical needs of the hospital while making provision for future medium and long term infrastructural development
- Facilitate the future refurbishment of the existing Women's & Children's accommodation
- Future-proof an expansion zone for Maternity and Paediatric services adjacent to the proposed development
- Facilitate structured development of the campus to provide direct association between critical care facilities, maximising the strategic use of a site adjacent to the core of the main hospital

2.3 Project history milestones to date

The following table provides a brief overview of the project timeline and key programme milestones prior to the completion of this SAR. The project was initiated in 2013. Where works, improvements or addition of new areas were carried out in the past on the existing ED, Maternity and Paediatric departments, these were often reactive and as a result of patient service requirements.

Table 4: Project milestones & timelines

Year	Department	Comments
1950s & 1980s	Maternity	Maternity departments/wards constructed. Refurbishment works have been carried out to reflect changes in healthcare and Infection Control and Prevention standards. However, the overall space and accommodation provision remains substantially below standard norms
1996 -1999	Emergency Department	The current Emergency Department (ED) at UHG is designed and constructed
2005	Emergency Department	Internal reconfiguration to create a segregated Paediatric area (two bays)
2007	Maternity	Single Theatre suite upgrade (1st Floor). However, it is below the recommended size, with poor flows including issues relating to lift access from the labour ward suites on the ground floor to the theatre on the first floor
2009	Maternity	Refurbishment and expansion of space for neo-natal service arising from significant infection control risks
2010 - 2013	Emergency Department	Further internal configuration and limited extension in an effort to address priority requirements and improve flow in the Emergency Department (e.g. Triage, Paediatric, Majors, Minors)
2013 (April)	Emergency Department	As per HSE Capital Approvals Process, a submission to complete an ED Feasibility/ Options Appraisal study for new/ replacement ED at UHG
2013	Emergency Department	Approval sought to progress new/ replacement ED at UHG. Approval received to commence a Cost Benefit Analysis (CBA) in line with the Department of Finance Guidelines for the Appraisal and Management of Capital Expenditure Proposals in the Public Sector
2014	Emergency Department	HSE appoints a project team to carry out a Feasibility Study for the new ED at UHG. In line with the Department of Finance Guidelines for the Appraisal and Management of Capital Expenditure Proposals in the Public Sector, a Cost Benefit Analysis was completed for the ED Project

Year	Department	Comments
2015 (December)	Emergency Department	Taoiseach, Enda Kenny T.D. alluded to the infrastructural deficit in the ED at UHG in a letter to the Irish Nurses and Midwives Organisation, stating: *"I made it clear in the Dáil that I am not happy with overcrowding in our emergency departments, including Galway, and that no-one in this Government wants patients to experience long waiting times when they are at their most vulnerable."*
2016 (January)	Maternity	National Maternity Strategy published as endorsed by Leo Varadkar TD, Minister for Health
2016	Emergency Department	The ED at UHG was also referenced in the 2016 Programme for Partnership Government, as a capital investment project to be analysed under the 2017 Capital Review Plan. The Programme stated that: *"We are committed to continued capital investment in our Emergency Departments ... A new ED for Galway Hospital is currently being designed with a view to funding for construction being provided as part of the 2017 Capital Plan Review."*
2016 (October)	Emergency Department and Women's & Children Development	An updated CBA of the proposed project, incorporating both a new ED and W&C Department, was commissioned, in line with the 2013 Public Spending Code. This was in consideration of the updated project brief to reflect the need to include the W&C scope in the project. The CBA concluded that the ED W&C project (full fit-out) was the strongest performing option. However, in the context of funding constraints at the time, a similar option but with the W&C floors built to shell and core, for fit out at a later date, was recommended
2017	Emergency Department	The Acute Floor Model is published
2017	Emergency Department	The ED at UHG was also referenced in the Programme for Partnership Government as a capital investment project to be analysed under the 2017 Capital Review Plan. The Programme stated that: *"We are committed to continued capital investment in our Emergency Departments (EDs) [...] A new ED for Galway Hospital is currently being designed with a view to funding for construction being provided as part of the 2017 Capital Plan Review."*
2017 (November)	Emergency Department and Women's & Children Development	HSE appoints a Design Team for the ED W&C project
2018	Emergency Department and Women's & Children Development	The ED development was further highlighted as a key priority by Taoiseach Leo Varadkar TD in his priorities for Galway at the Project 2040 Launch on government infrastructure priorities in 2018: *"Investment in healthcare for the region includes new dedicated ambulatory elective-only hospital facilities for Galway and development of the Galway Emergency Department and ward block."*
2018	Maternity	Report of the unannounced HIQA inspection of Maternity Services at UHG August 2018 noted that: the infrastructure of the Labour Ward did not meet recommended design and infrastructural specifications for Maternity services, and as such needs to be upgraded Obstetric operating theatre capacity needs to be increased, and operating theatre design and infrastructure

Year	Department	Comments
		at the hospital needs to be in line with recommended guidelines for surgical facilities
2019	Emergency Department	The National Trauma Strategy is published
2019	Maternity	Department of Health initiated discussions with Saolta Group regarding UHG as a Tertiary referral centre for the West. The National Maternity Strategy, endorsed by Leo Varadkar TD Minister for Health, outlined: *"for all care pathways the physical infrastructure should be to a high standard providing a calm relaxing and homely environment that will support a physiological process and respect the woman's dignity and need for privacy during childbirth, theatres will be baby friendly. Modern facilities including where appropriate birthing aids and birthing pools will be available."* *"Each Maternity network develops a plan for the provision of Alongside Birth centres."* With respect to Gynaecology services, the government policy on Termination of Pregnancy (TOP) requires dedicated space to be provided for women accessing TOP services. The current infrastructure has made it challenging to provide the private, appropriate space for women.
2019 - 2020	Emergency Department and Women's & Children Development	HSE, on review of the Stage 1 Report for the ED with shell & core building space for W&C development at a future date, requested the Stage 1 Report to be updated to also include full fit-out of the development as part of the project
2019 (December)		Updated Public Spending Code comes into effect
2020 - 2021	Emergency Department	ED Covid emergency works carried out to provide segregation (red/green – covid/non-covid) of patients, and to improve streaming and flow, in existing prefabricated units
2021 - 2022	Emergency Department	Temporary Emergency Department delivered on the UHG campus *(under current Emergency Covid-19 legislation & regulations (SI 93 & SI 113)*. Construction commenced in July 2021, to be fully operational by July 2022
2022 (April)	Emergency Department and Women's & Children Development	Completion of Strategic Assessment Report and submission to HSE, EMT/ARC

2.4 Strategic alignment with public policy

The Public Spending Code requires that the consistency of the proposed project with a range of public policy areas be assessed, notably with respect to:

- National and regional planning policy
- National public investment policy
- Specific sectoral (i.e. healthcare) policy, including research and education, and eHealth and ICT infrastructure policy
- Climate action policy

National planning and public investment policy

The key documents of national and regional planning policy are the National Planning Framework and the National Development Plan, which together form Project Ireland 2040[15]. Project Ireland 2040 recognises the need for investment in new healthcare facilities, particularly in acute, elective and community settings. Some €10.9 billion of the €116 billion original budget for the period 2018-2027 has been allocated to healthcare, €8.4bn of which has been identified on the Project Ireland 2040 *Investment Projects & Programme Tracker*[16] [17]. Under the auspices of Project Ireland 2040 some €983 million was allocated to investment in healthcare infrastructure in 2021[18].

The NDP was reviewed[19] as part of the 2020 Programme for Government[20], and in July 2021 the government agreed an increase in the budget to €165 billion to run from 2022 to 2030, with an emphasis on housing, healthcare, education, and research[21]. The new NDP was published in early October 2021 and identifies €5.7 billion to be spent on healthcare projects between 2021 and 2025[22].

The ED at UHG was also referenced in the previous 2016 Programme for a Partnership Government[23], as a capital investment project to be analysed under the 2017 Capital Review Plan. The Programme stated that:

"We are committed to continued capital investment in our Emergency Departments (EDs) ... A new ED for Galway Hospital is currently being designed with a view to funding for construction being provided as part of the 2017 Capital Plan Review."

Likewise, the proposed ED development was highlighted as a key priority by then Taoiseach Leo Varadkar in his priorities for Galway at the Project 2040 Launch on government infrastructure priorities in 2018[24]:

"Investment in healthcare for the region includes new dedicated ambulatory elective-only hospital facilities for Galway and development of the Galway Emergency Department and ward block".

Healthcare policy

The proposed development is in line with and reflects the requirements of a range of public policies, strategies and reports. Key among these are:

- Sláintecare[25]
- Saolta University Health Care Group Strategy 2019-2023[26]
- Galway University Hospitals - Options Appraisal for Saolta Model 4 Hospital Services in Galway, 2019[27]

[15] https://www.gov.ie/en/campaigns/09022006-project-ireland-2040/
[16] KPMG et al., 2019, *Galway University Hospitals - Options Appraisal for Model 4 Hospital Services Service Provision in Galway*
https://saolta.ie/sites/default/files/publications/GUH%20Options%20Appraisal%20Report%20-%20Final.pdf
[17] Latest update, December 2020. Inclusion on the Tracker does not constitute investment commitment.
https://assets.gov.ie/45752/ef45839ed7094b8185ea05414e7c2bbe.xlsm
[18] HSE Capital Plan 2021
https://www.hse.ie/eng/services/publications/corporate/hse-capital-plan-2021.pdf
[19] file:///C:/Users/zn788qu/Downloads/137660_17f424e3-a359-4f5d-8fde-0ac9b987a568%20(1).pdf
[20] https://www.rte.ie/documents/news/2020/06/programmeforgovernment-june2020-final.pdf
[21] https://www.rte.ie/news/politics/2021/0727/1237597-ndp-regan/
[22] https://enterprise.gov.ie/en/News-And-Events/Department-News/2021/October/04102021.html
[23] https://www.merrionstreet.ie/merrionstreet/en/imagelibrary/programme_for_partnership_government.pdf
[24] Op. Cit.
[25] https://www.gov.ie/en/publication/0d2d60-slaintecare-publications/
[26] https://saolta.ie/sites/default/files/publications/Saolta%20Group%20Strategy%202019-23_FINAL%20WEB.pdf
[27] KPMG et al., 2019, Op. Cit.

- National Maternity Strategy - Creating a Better Future Together 2016-2026[28]
- National Trauma Strategy - A Trauma System for Ireland (2018)[29]
- A National Model of Care for Paediatric Healthcare Services in Ireland[30]
- Model of Care for Neonatal Services in Ireland (2015)[31]
- The National Model of Care for Paediatric Critical Care (2019)[32]
- National Clinical Programme for Paediatrics and Neonatology (2011)[33]
- National Strategy and the Department of Health Women's Health Taskforce (2019)
- Acute Floor Model for Ireland (2017)
- Infection Prevention and Control Building Guidelines for Acute Hospitals in Ireland - Strategy for the control of Antimicrobial Resistance in Ireland (SARI)[34]
- HIQA National Standard for the Prevention and Control of Healthcare Associated Infection[35]
- National Standards for Safer Better Healthcare (2012)[36]
- The National Emergency Programme - A Strategy to improve safety, quality, access, and value in Emergency Medicine in Ireland (2012), (NEMP)[37]
- The National Acute Medicine Programme (2010), (NAMP)[38]
- Standards for Emergency Department Design and Specification for Ireland (2007), (IAEM)
- Models of Care for Acute and Elective Surgery[39]
- GRUHG Strategic Plan for Public and Patient Involvement 2013 – 2015 (2014)[40]
- Report of the unannounced inspection of Maternity services at University Hospital Galway August 2018[41]
- Overview report of five years of HIQA's monitoring in Irish public acute hospitals against national standards: 2015–2019
- Monitoring programme against the National Standards for Safer Better Maternity Services with a focus on obstetric emergencies (dates of inspection: 30 and 31 August 2018)
- National Emergency Medicine Programme site visit report University Hospital Galway Dec 2021

[28] https://assets.gov.ie/18835/ac61fd2b66164349a1547110d4b0003f.pdf
[29] https://assets.gov.ie/10116/70fd408b9ddd47f581d8e50f7f10d7c6.pdf
[30] https://www.hse.ie/eng/about/who/cspd/ncps/Paediatrics-neonatology/moc/chapters/
[31] https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/model-of-care-for-neonatal-services-in-ireland.pdf
[32] https://www.hse.ie/eng/about/who/cspd/ncps/critical-care/moc/model-of-care-for-Paediatric-critical-care.pdf
[33] https://www.hse.ie/eng/about/who/cspd/ncps/paediatrics-neonatology/
[34] https://www.hpsc.ie/a-z/microbiologyantimicrobialresistance/infectioncontrolandhai/guidelines/File,3439,en.pdf
[35] https://www.hiqa.ie/sites/default/files/2017-05/2017-HIQA-National-Standards-Healthcare-Association-Infections.pdf
[36] https://www.hiqa.ie/reports-and-publications/standard/2017-national-standards-prevention-and-control-healthcare
[37] https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/the-national-emergency-medicine-programme.pdf
[38] https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/report-of-the-national-acute-medicine-programme.pdf
[39] https://www.hse.ie/eng/about/who/cspd/ncps/surgery/moc/
[40] https://www.saolta.ie/documents/gruhg-strategic-plan-public-and-patient-involvement-2013-2015
[41] https://www.hiqa.ie/system/files?file=inspectionreports/university-hospital-galway-30-31-August-2018.pdf

- SDU/PMIU report in collaboration with Galway University Hospital and Saolta University Health Care Group – GUH Emergency Department Attendance Audit – 16.10.2021 – 22.10.22

Sláintecare

Sláintecare represents a fundamental transformation of healthcare provision in Ireland, the aim of which is to deliver the vision of one universal health service for all[42]. Sláintecare underlines the 'Right Care, Right Time, Right Place' approach, that recognises the need to "shift to the left" away from the current hospital-centric care model and move to an efficient utilisation of alternative treatment pathways.

The Enhanced Community Care (ECC) transformation programme is a national priority for the HSE, as part of the Sláintecare reforms. Community Healthcare West is focussing on Older Persons, Chronic Disease management (Cardiology, Respiratory and Diabetes), diagnostics and community healthcare networks. This will ensure that discharge from Acute Hospitals is co-ordinated to ensure people can return to their home environment as early as possible.

The Integrated Care Programme for the Older Person (ICPOP)[43], a part of the ECC workstream within Sláintecare[44], aims to improve the lives of older persons by providing access to integrated care and support planned around their needs and choices, supporting them to live well. At its essence is the need to transition from an acute, episodic care to longitudinal and coordinated integrated care models, in line with the 10-step ICPOP Framework. This is particularly important for GUH, given aging demographics. Similarly, the HSE Winter Preparedness Plan 2021/2022[45] endorses a home first approach. Hospital admission avoidance strategies in place are ambulatory care pathways, access to specialist opinion via Health-mail with expedited diagnostics, and a "Frailty at the Front Door" approach[46]. A Health and Social Care Team for Ambulatory Care and a Frailty intervention team are works in progress.

Saolta Group Strategy

The *Saolta Group Strategy 2019 – 2023*[47] aligns with government policy and seeks to improve patient flow by developing an integrated healthcare system across the region. This is to be achieved through seven key strategic themes of Quality and Patient Safety; Patient Access; Governance and Integration; Skilled Caring Staff; Education, Research and Innovation; E- Health; Infrastructure.

[42] https://www.gov.ie/en/campaigns/slaintecare-implementation-strategy/
[43] https://www.icpop.org/integrated-care-programme#gref
[44] file:///C:/Users/zn788qu/Downloads/134746_9b3b6ae9-2d64-4f87-8748-cda27d3193f3%20(1).pdf
[45] https://www.hse.ie/eng/services/publications/winter-plan-2021-2022.pdf
[46] https://www.hse.ie/eng/about/who/cspd/ncps/acute-medicine/programme-events/3-emer-ahern-approval.pdf
[47] Op. Cit.

Figure 8: Themes of the Saolta University Health Care Group Strategy

Source: Saolta University Health Care Group Strategy 2019-2023

The Strategy specifically references the development of the Acute Floor Model (2017), and the *Options Appraisal for Saolta Model 4 Hospital Service Provision in Galway* (2019)[48] report, which was subject to review in March 2022, to identify the necessary infrastructure to deliver safe and high quality care for the region (see Box 1 for further discussion of the Options Appraisal report). The Strategy also makes specific reference to the key role of research and education, and of eHealth and ICT infrastructure. These are discussed later in this chapter.

Emergency Department

A recent review of Emergency Medicine services within the Saolta Group identified and highlighted the deficiencies in the GUH ED facilities. The Review highlighted significant risks associated with the current ED infrastructure, describing it as wholly inadequate in terms of isolation, resuscitation, Paediatric ED attendances and PETs. Furthermore, the ED did not meet infrastructural requirements for the various patient streams and numbers attending. It concluded that a new fit-for-purpose ED at UHG is necessary to deliver the service.

The proposed project is likewise supported by the NEMP, which has stated that the current ED is unfit for purpose, and does not meet the Standards for Emergency Department Design and Specification (2007). The overarching aim of the NEMP is to improve the safety and quality of care, and reduce waiting times for patients in EDs throughout the country. The EMP acknowledges that timeliness of care is vital, with research showing that prolonged ED waiting times are associated with poorer outcomes for patients, and are a major reason for patient dissatisfaction with ED services.

The national trauma strategy, *A Trauma System for Ireland* (2018), outlines that there should be equitable access to trauma care and an integrated approach to service delivery. It is envisaged that there will be two National Major Trauma Centres, in Dublin and Cork. There would also be designated Trauma Units, which will support the National Major Trauma Centres, of which GUH will be one, with its 24/7 ED and specialist services which can provide acute trauma services (with the exception of patients requiring neurosurgical care):

"HSE to consider UHG for designation as a Trauma Unit with Specialist Services within the Central Trauma Network, along with the development of appropriate access and bypass protocols taking into account the role of the hospital in the network" (p.11).

[48] KPMG et al., 2019, Op. Cit.

Box 1: Options Appraisal for Model 4 Hospital Service Provision in Galway (2019)

In 2019 GUH commissioned KPMG et al. to undertake an Options Appraisal for the future delivery of Model 4 hospital services in Galway, taking into account existing infrastructure on the UHG and MPUH campuses. The Appraisal considered options on either campus or a combination of both.

The Covid 19 pandemic has highlighted the serious infrastructure deficits on the UHG campus, including significant capacity issues, which are reflected in the sustained escalation status of the hospital in relation to Emergency care, and growing waiting lists in relation to scheduled care.

In early 2022, in view of the impact of Covid 19 on the healthcare system, the Saolta Group engaged KPMG to reassess the outcome of the 2019 Options Appraisal. The review included a detailed analysis of the previous options, which were appraised against identified criteria, including but not limited to patient safety, quality of care, timelines, feasibility and affordability.

The outcome of this reassessment was a recommendation to proceed with the redevelopment of the acute model 4 hospital for the Saolta Group, predominately on the UHG campus, of which the ED W&C block would be an initial priority phase of redevelopment. The elective element of the acute hospital was recommended to be developed on the MPUH campus.

Maternity care

In the *National Maternity Strategy*, the HSE sets out a new model of care for neonatology services in Ireland, designed to ensure sustainability in Neonatal services. The model has three core objectives:

2. Improve safety and quality in the delivery of baby-centred care
3. Improve access to the appropriate services
4. Improve cost-effectiveness of services delivered

The deficiencies in the existing Maternity facilities at UHG mean that the proposed project is needed to deliver the national strategy within the Saolta Group.

The *UHG Women's & Children's Managed Clinical & Academic Network* (MCAN)[49] was launched in January 2020. This clinically led model provides integrated governance across five hospitals in the Saolta Group, where the Women's & Children's specialties are delivered. These are Maternity, Gynaecological, Neonatal, and Paediatrics, Child & Adolescent Sexual Assault Treatment services (CASATS) & Sexual Assault Treatment services (SATU).

Key features of the Women's and Children's MCAN include:

- A collaborative approach to providing care, with hospitals and specialities working together improving quality and outcomes for patients
- The MCAN will work closely with individual hospitals to develop and implement strategy, group-wide policies and clinical pathways to ensure improved services for patients

[49] https://www.saolta.ie/sites/default/files/publications/Saolta%20Women%27s%20%26%20Children%27s%20MCAN%202020%20Annual%20Clinical%20Report%2020_WEB.pdf

- Further integration in education, research, and training to improve the recruitment and retention of staff and support the development of highly skilled multidisciplinary teams

The Women's & Children's MCAN continues to work in collaboration with the Saolta Group Executive and hospitals in implementing this model and thereby providing the best care to its mothers, babies, children and young persons using the service.

Gynaecology

Gynaecology services nationally are developing in response to new government policy, the Cervical Check issue (resulting in the establishment of the Women's Health Taskforce), Ministerial priorities and NWIHP priorities.

In the Saolta Group, and UHG specifically, this has meant the development of existing services, the establishment of several new services, and planning for further services with a Group-wide remit. These developments require infrastructure investment. In this regard:

- The proposed project will provide the additional theatre and inpatient and daycase capacity to meet the need for a Group-wide Gynaecological Oncology and complex benign Gynaecology service
- Moving the inpatient and daycase services from the existing Maternity Unit will release space for the additional multi-disciplinary outpatient and ambulatory care services that are coming on-stream

Paediatrics

The *National Model of Care for Paediatric Healthcare Services in Ireland* states:

"Full implementation will require the development of a detailed plan for the next 5-10 years that must be embedded within the strategic plans of hospital groups and community health organisations, and should be prioritised in line with national policy"

The Paediatric inpatients and Neonatal elements of the proposed project are in line with this model of care. Notably, adolescent facilities (14-16 year olds), in line with Children First Guidelines, will be provided for the first time. A new model of care for General Paediatric Surgery has been developed for Irish Paediatric units, in partnership with the Faculty of Paediatrics, Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland. Paediatric emergency care is a central pillar of the Paediatric and Neonatal Models of Care, and will be incorporated into the plan for UHG to act as a regional centre.

The Model of Care for Neonatal Services in Ireland notes that the Saolta Group lacks tertiary neonatal facilities, despite UHG being designated a tertiary hospital, and states:

"The expansion of the neonatal unit in Galway should be considered."

Education & Research

It is widely recognised that healthcare organisations with a strong research culture deliver better care and are associated with better organisational performance. A key part of the *Saolta Group Strategy 2019-2023* is to embed research into the healthcare system and realise the full potential of its academic partnership with NUIG, in healthcare delivery and in the translation of innovative research outcomes to patients and the healthcare community.

The Saolta Group is the first hospital group to implement an integrated approach to research governance with its academic partner, NUIG. The HRB Clinical Research Facility is a joint venture between GUH, the Saolta Group and NUIG, and provides the infrastructure, physical space, facilities, expertise and culture needed to optimally support bioscience research. It is co-located with GUH and focuses on studies aimed at understanding a range of diseases. It supports research by providing:

- access to clinical specialists and networks
- bio-statistical and methodological support on study design and analysis, study management, study budget preparation and contract review
- study protocol development, ethical and regulatory submissions
- data management and IT support
- medical writing, research nursing support, research pharmacy support
- biospecimen collection and processing, controlled storage for investigational medicinal products, and
- devices, monitoring, pharmacovigilance, and education programmes

The development of robust internal structures and processes and researcher supports in the HRB Clinical Research Facility will facilitate research in acute emergencies and unscheduled care.

The Saolta Group and NUIG have developed simulation as a teaching methodology that supports patient's safety and quality improvement. The Irish Centre for Applied Patient Safety and Simulation (ICAPSS)[50] was established in 2016 in GUH, and combines simulation–based education, patient safety research, quality improvement and evidence-based education with the aim to improve patient care. ICAPSS simulation provides training to staff working in ED.

eHealth enablement of the proposed ED W&C development

Integrated and robust eHealth linkages between and across Saolta Group hospitals and community is critical to ensuring safe, efficient and integrated care for patients, and forms one of the key themes of the *Saolta Group Strategy 2019 – 2023.* A clear case for the development of an eHealth agenda in Ireland has emerged, and the strategic importance of this has been reflected in public policy commitments including Programmes for Government and Sláintecare.

The proposed project will enable the further development of eHealth Systems to ensure the availability of high quality, accurate and timely information to support clinical decision-making. It requires appropriate ICT infrastructure to enable the implementation of integrated clinical systems, in partnership with the HSE Office of the Chief Information Officer (see further discussion below). Investment in ICT as part of the proposed ED W&C project will support the clinical and business functions of UHG and across Saolta Group Hospitals, given the central role that UHG performs as the Model 4 hospital, and the movement of patients between hospitals in the region for different aspects of care.

Significant under-investment in effective eHealth solutions for unscheduled care in the Irish healthcare system is well-recognised. Many hospitals are operating antiquated, disjointed and broadly ineffective digital tools for providing core unscheduled care services. Procurement and delivery of a solution that supports all aspects of emergency care including Emergency Medicine, Acute Medicine, Acute Surgery as well as the enablement of the Trauma Strategy, has been interrupted by the Covid-19 pandemic, among other things. The need to deliver tools that support improvement in PET and safe and effective care is well-established.

Evolve, an Electronic Medical Record (EMR) system is currently in use in UHG, including the ED, and will form part of the eHealth applications in the services delivered in the proposed project. *Evolve* is also currently used in the W&C Directorate to access the general hospital notes for patients.

ICT Infrastructure considerations

As well as enabling the eHealth agenda for a digital-first design, core digital infrastructure will be integral to the design and use of a modern, efficient and effective digitally-enabled

[50] https://www.simulationmasters.com/nui-galway/

building. Contemporary buildings include in their fabric, fixed line, IP and mobile telephony capability, wayfinding and sophisticated management capabilities to optimise energy use and sustainability. All these rely on stable, resilient, highly available and secure core ICT infrastructure.

Learnings from other major developments include the complex interdependencies between the traditional construction elements and the sophisticated ICT enablement for a building. Other developments have experienced significant challenges in ensuring that ICT enablement for buildings is coordinated with ICT enablement for the operational services within the building.

Climate action policy

Climate Action policy is encapsulated in the Government's Climate Action goal of being carbon neutral by 2050[51]. To achieve this goal, a growing proportion of energy usage in Ireland is planned to come from renewable sources over time, and the transport fleet will move away from fossil fuel usage.

In recent years, a number of policies have been introduced which have contributed to internalising the energy usage-related environmental costs of construction and subsequent operation of facilities, including the introduction of the carbon tax and ongoing planned increases therein, and the EU Emissions Trading System (ETS) for larger emitters such as power stations and cement producers.

To reflect these policies, GUH has adopted use of an Energy Efficient Design Methodology for the current project. This is estimated to generate an approximately 40% reduction in carbon emissions compared to a benchmark, through the introduction of passive measures, energy efficiency and the use of low-carbon energy sources, including biomass, solar, and heat recovery and heat pump technologies[52]. As a result of these and other measures, the new building will comply with Near Zero Energy Building (NZEB) standards[53].

2.5 Letters of support

The proposed project has the support of key stakeholders, including:

- National Clinical Programme in Emergency Medicine
- National Women and Infants Health Programme
- The National Cancer Control Programme (NCCP)

Letters of support from these bodies are included in Appendix A of this SAR. At a meeting on 18th November 2019, the HSE Deputy National Director Acute Operations sought additional information in the context of the scale, scope and costs of the proposed project, and was advised that an updated feasibility study would be conducted. The related correspondence between HSE Acute Operations and the Saolta Group CEO is also included in Appendix A.

[51] https://www.gov.ie/en/publication/2d98d0-climate-action/ and https://www.gov.ie/en/press-release/aecb3-government-publishes-new-climate-law-which-commits-ireland-to-net-zero-carbon-emissions-by-2050/
[52] Moloney O'Beirne Architects, Cullen Payne Architects, 2019, *Emergency Department and Women's & Children's Development Block, UHG, Stage (i) Report.*
[53] https://www.seai.ie/business-and-public-sector/standards/nearly-zero-energy-building-standard/

3. Preliminary Demand Analysis

Current and estimated future demand for the ED, Maternity and Paediatric services underpin the need for the proposed project. This chapter discusses the key features of current and expected future demand, focussing on:

- Underlying demographics
- Demand for ED services
- Demand for Maternity services
- Demand for Paediatric services

3.1 Underlying demographics

UHG & Saolta Group catchment area[54]

UHG's catchment population is approximately 323,000 (2016 Census of Population), drawn from the greater Galway, Mayo and Roscommon areas. The population of the wider Saolta Group, for which UHG serves as a tertiary hospital, is estimated at 830,000, or approximately 16.5% of the national population[55], spread across one third of the land area of the State.

Age Dependency – the population aged 0-14 and 65+ as a percentage of the population aged 15-64 – is a key demographic indicator for healthcare services. Galway city has one of the lowest age dependency ratios in the country, in terms of both young and old populations. However, all of the area served by the Saolta Group, with the exception of Galway city, has both an old age and a young age dependency ratio above the State average. It is noteworthy that while the old age dependency ratio grew nationally from 17.4% to 20.4% between the 2011 and 2016 Censuses, the young age dependency ratio also grew marginally, from 31.9% to 32.3%[56].

Counties Donegal, Leitrim, Sligo, Mayo, and Roscommon have among the oldest populations in the country, while counties Mayo and Leitrim have the highest old age dependency ratios nationally, at 28.3% and 27.4% respectively. Demand for healthcare services is significantly higher for the 65+ age group than for younger age groups[57], so this can be expected to impact on demand for ED services in the Saolta Group. Likewise, the Saolta Group's higher young age dependency ratio points to strong demand for Paediatric and Maternity/Neonatal services.

Population projections

The Project Ireland 2040 report, published as part of the National Planning Framework, incorporates population projections for the next 20 years, including:

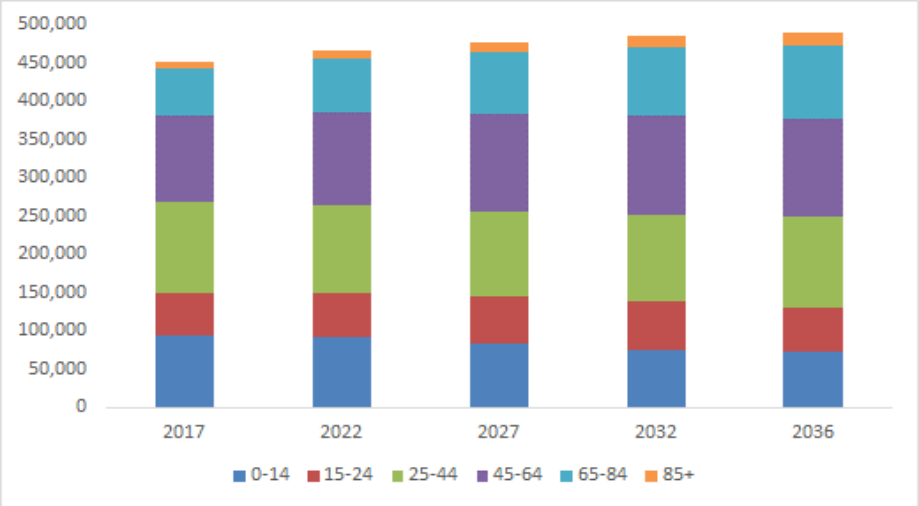
- the population of Galway City and suburbs is expected to increase by 40-45,000 (a 50-60% increase), to reach 120-125,000
- the population of the Northern and Western region is expected to grow by 160-180,000, to reach in excess of one million[58]
- Nationally, the population aged over 65 is expected to more than double to 1.3 million

[54] Unless indicated otherwise, population statistics are drawn from the Central Statistics Office's (CSO) 2016 Census of Population https://www.cso.ie/en/census/census2016reports/
[55] https://www.cso.ie/en/releasesandpublications/ep/p-pme/populationandmigrationestimatesapril2021/
[56] https://www.cso.ie/en/releasesandpublications/ep/p-cp3oy/cp3/aad/
[57] https://www.esri.ie/news/demand-for-healthcare-projected-to-increase-substantially-with-rapid-growth-and-ageing-of
[58] These projections predate the Covid-19 pandemic. The impact of Covid-19 and new work practices, notably remote working, and how this may impact population distribution has not been established. However, as the Government is currently considering legislation pertaining to the right to remote working/working from home, it may potentially increase regional population growth above current projections.

- While the population under 15 years old is expected to decrease by 10% nationally, it will remain at approximately one million

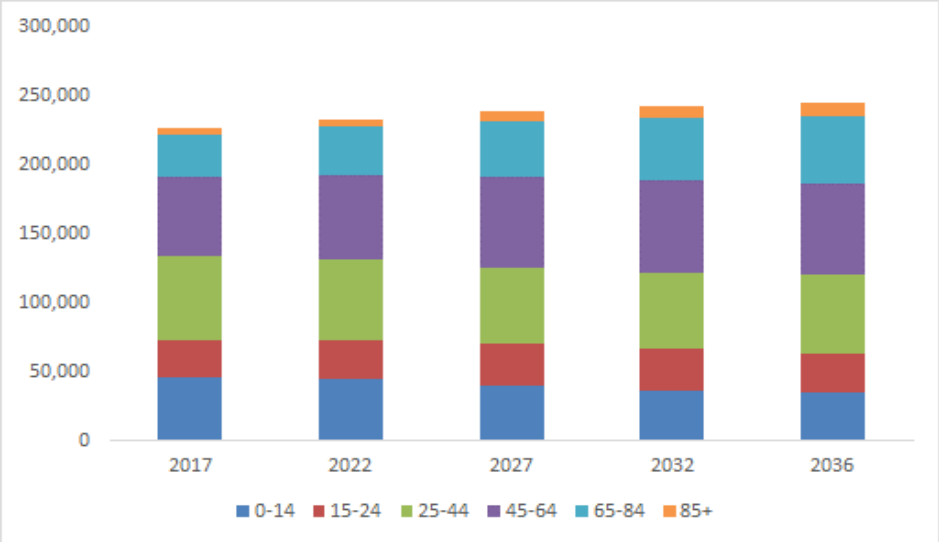
The CSO has also produced regional population projections to 2036[59]. The region most closely aligned with the UHG catchment is the West region, comprising counties Galway, Mayo and Roscommon. The following charts present the forecasts for the region for the population as a whole and for females (given the centrality of Maternity services for the proposed project), split by age group.

Figure 9: West Region population projection by age group, 2017 to 2036, '000s



Source: CSO M2F2 Dublin Outflow scenario[60]

Figure 10: West Region population projection, females by age group, 2017 to 2036, '000s



Source: CSO M2F2 Dublin Outflow scenario

The forecast indicates that the population will increase from 451,000 to 491,000 over the period, an increase of 8.8%. The demographic shift is apparent, with particularly strong growth in the 65+ and 85+ age cohorts, while the population under 15 years of age is projected to fall by almost a quarter over the same period, from 94,000 to 73,000. The

[59] https://www.cso.ie/en/statistics/population/regionalpopulationprojections/
[60] This represents a medium scenario:
F2: Total Fertility Rate (TFR) to decrease to 1.6 by 2031 and to remain constant thereafter
M2: Net inward migration continuing at more moderate levels +20,000 per annum in 2017/2036
Dublin outflow: 2016 internal migration flows reverting to the 2006 pattern by 2021 and constant thereafter.

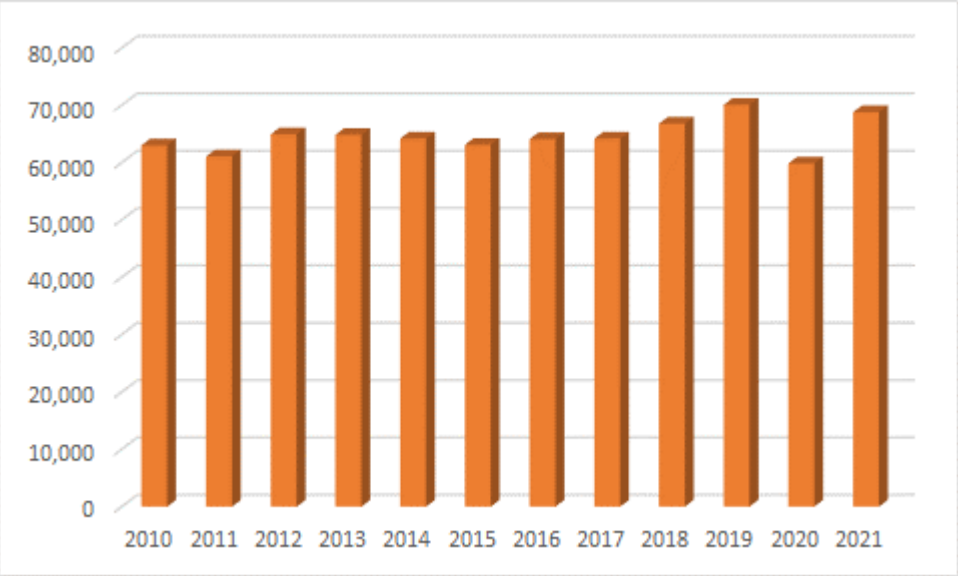
population of females aged 15 to 44 is projected to fall by just under 3%, from 88,000 to 86,000.

3.2 Demand for Emergency Department & Acute Floor services

Current demand

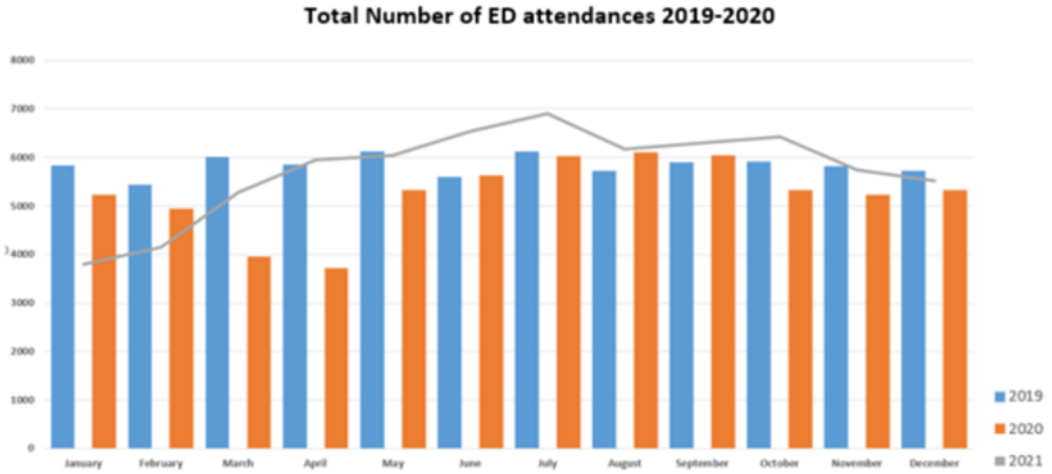
The existing core ED at UHG opened in 1998, and an expanded ED Paediatric area opened in 2015. There were approximately 70,000 ED attendances in 2019, including 15,638 Paediatric attendances. The following charts set out the evolution of ED attendances over the last decade, and by month from 2019 to 2021.

Figure 11: UHG ED Attendance, 2010 to 2021



Source: GUH

Figure 12: UHG Total Number of ED Attendance, 2019 to 2020



Source: GUH

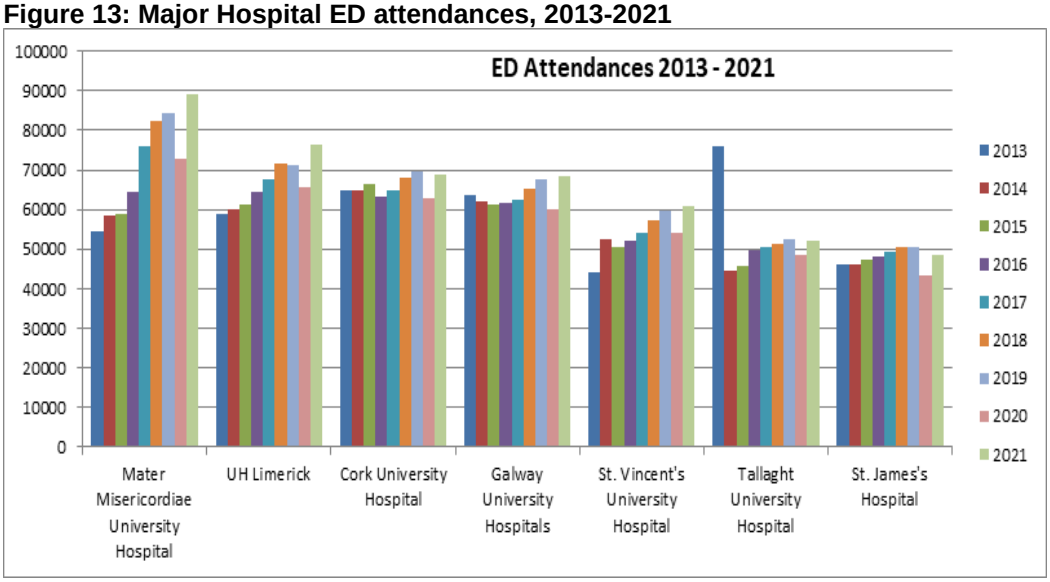
Attendances grew by 4.09% in 2018 and 4.9% in 2019. This is a pattern seen at large EDs around the country, with population growth and aging contributory factors (national population

grew by 4% from 2014 - 2017)[61]. According to the NEMP, ED attendances are increasing approximately 4-5% per annum nationwide, with Paediatric patients representing 20 – 25% of the total. Attendances in 2020 and 2021 reflect the impact of Covid-19, but the longer term growth pattern is expected to re-emerge once the pandemic is over.

The chart indicates a stabilisation in attendances between 2014 and 2017. This was achieved as a result of physical improvements in the infrastructure, as well as process changes within the ED, linked with the EMP and Acute Floor model, whereby attendees were assessed at Triage and streamed to another area or hospital service or discharged without requiring admittance into ED.

As the following chart indicates, UHG has been the 4th busiest ED in the country for the past three years. UHG also caters for the largest number of emergency air ambulance services movements in the country, accounting for almost half of all such movements nationally. In 2019, some 249 emergency air ambulance services landed at UHG. The Coast Guard Sikorsky S92 helicopter and the Air Corps AW139 helicopter are the main emergency services utilising the UHG helipad, from their bases in Shannon and Sligo, and Athlone Custume Army Barracks respectively.

Figure 13: Major Hospital ED attendances, 2013-2021

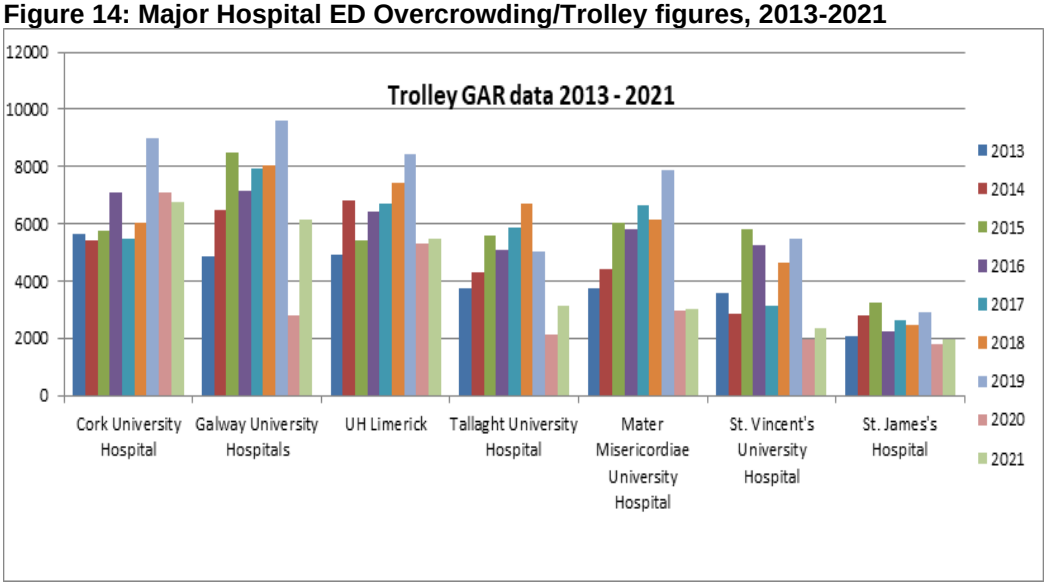


Source: GUH

As indicated, overcrowding is a significant issue in UHG's ED, and it is regularly ranked the highest nationally for the number of patients awaiting beds. This results in significant delays to assessment and treatment for ED attendees.

[61] Lawless, J., 2019, *Emergency Departments: Trends 2014-2017*, Health Vote, Department of Public Expenditure and Reform, October 2019
http://www.budget.gov.ie/Budgets/2020/Documents/Budget/Emergency%20Department%20Trends%202014-2017.pdf

Figure 14: Major Hospital ED Overcrowding/Trolley figures, 2013-2021



Source: GUH, TrolleyGAR data

The current facilities suffer from a number of significant inadequacies. For instance, while the ED Paediatric area is audio-visually separate it does not cater for the volume of attendances, does not have a dedicated Paediatric Triage area, and has an inadequate waiting area. Current ED infrastructure is also inappropriate for women in early stage pregnancy loss, as appropriate private space to manage their clinical needs and recognise their bereavement is not available.

Future demand

The medium-term trend in UHG ED attendances is upwards, with growth in excess of 4% per annum in recent years (prior to the Covid-19 pandemic). Activity and attendances are expected to continue growing at 4-5% per annum, as a result of:

- an ageing population in the Saolta Group catchment area
- reconfiguration of ED services across the Saolta Group, which is expected to lead to an increase in general activity
- pent up demand under the current inadequate infrastructure
- the designation of UHG as the Group Trauma centre
- The potential change to the operational hours at the Portiuncula Hospital ED to 0800-2000

Future growth is also underlined by developments envisaged under the NEMP, the NAMP and the National Trauma Strategy, which are discussed below.

National Emergency Medicine Programme & National Acute Medicine Programme

As indicated, the proposed ED development is supported by the NEMP, which has stated that the current ED is unfit for purpose, and does not meet the Standards for Emergency Department Design and Specification (2007). The NEMP visit to GUH in 2021 took place as part of a programme of visits to clusters of hospitals whose EDs are likely to form, or have already formed, an Emergency Care Network. The development of these networks is aimed at delivering high quality care to patients, as a key recommendation of the Model of Care recommended by the EMP. It entails a 24/7 ED with direct clinical governance and necessary supporting links to satellite units. The aim is to ensure that unscheduled care can be delivered locally as safely as possible, while having systems in place that ensure the quality of care to each patient is of a high standard.

The NEMP and the NAMP require that any new ED should reflect the concept of the Acute Floor. They also allow for the incorporation of a CDU, which cannot be accommodated in the current physical infrastructure. The proposed development adopts the Acute Floor Model of Care concept, to ensure efficient streaming of patients at the front door of the hospital via the pathways of the ED, AMAU and ASAU. Together with the CDU these will provide access to relevant senior decisionmakers, and streaming to improve PET.

UHG's AMU has shown consistently that it reduces the admission rate of medical patients and reduces the length of stay of those patients admitted, regardless of diagnosis or co-morbidity. Current demands for Red and Green Pathways to cope with the Covid-19 pandemic have impacted on the functionality of the AMU, however.

National Trauma Strategy

As the National Trauma Strategy (2018) notes:

- Injuries are a global health problem, causing over five million deaths per year
- Five of the 15 leading causes of death in persons 15 – 29 years of age worldwide are unintentional injury related, including road traffic injuries, falls, farm and industrial accidents, drowning and burns
- In the EU, injury represents the fourth and in Ireland the third leading cause of death, and accounts for at least 8.5% of admissions to hospitals

The National Trauma Strategy recognises that UHG is a major teaching hospital with a wide range of specialist services capable of providing definitive care for a wide range of injuries occurring within the surrounding region, in particular those patients not requiring neurosurgery or neuro-critical care services. As indicated, the National Trauma Strategy envisages UHG as a Trauma Unit with specialist services, given the breadth and depth of services currently provided and travel distance from the nearest National Trauma Centre (Dublin and Cork).

Additionally, some 26 Irish hospitals that cater for trauma patients, including UHG, provide data to the Major Trauma Audit using the Trauma Audit Research Network (TARN) methodology[62].

3.3 Demand for Maternity & Gynaecology services

Current Demand - Maternity

In 2020, some 2,614 infants were delivered in UHG, increasing to 2,892 in 2021. In addition, some 600 women annually avail of some aspect of Maternity services for miscarriages or ectopic pregnancies.. The five Maternity units within the Saolta Group collectively handle approximately 10,000 deliveries per annum.

The UHG Maternity Department provides a number of regional referral services within the Saolta Group, including Foetal Medicine, Placenta Acreta Pathway, and Maternal Medicine for women with complex medical conditions in pregnancy. The Level 2 Neonatal unit in UHG provides regional services to the other four Maternity units in the Group. In 2019 there were 379 admissions, rising to 387 in 2020.

However, the current infrastructure is a constraining factor; the existing footprint for the Neonatal unit limits its capacity to accept transfers of premature neonates from across the Group. This necessitates transfers of a number of complex cases (approximately 30 infants per annum) to tertiary Maternity hospitals in Dublin, leading to greater separation from the mother and family.

[62] https://www.higa.ie/areas-we-work/health-information/data-collections/major-trauma-audit-mta#:~:text=MTA%20will%20provide%20a%20framework,hospitals%20participate%20in%20this%20audit.&text=to%20provide%20high%2Dquality%20data,and%20to%20drive%20clinical%20change and https://www.tarn.ac.uk/

As indicated, infrastructure constraints have resulted in overcrowding in patient areas for women and babies, limited bathroom and toilet facilities available for women, and increased the risk of HCAIs. These have a significant effect on neonates and their families, causing distress and anxiety, serious illness, long-term disability and in some instances death. Effective structures, processes and systems to manage potential risk from the environment, and activities within hospitals, can prevent a substantial proportion of HCAIs.

Current Demand - Gynaecology

Demand for Gynaecology services in UHG in 2020 was as follows (prior to the Covid-19 pandemic most of these metrics were higher):

- 6,930 outpatient attendances (2021)
- 1,075 inpatient and daycase surgical Gynaecology procedures
- 350 ambulatory Gynaecology cases
- 101 cancer surgeries with additional complex surgeries without malignancy (approximately 50 patients) and for patients receiving adjunct therapy (100+ patients)
- 4,064 Colposcopy attendances, comprising 912 new referrals and 3,152 follow-ups
- 233 referrals to HSCP services (Physiotherapy and Nutrition and Dietetics)

The existing Maternity unit includes a single Obstetric and Gynaecology theatre, but with the increasing demand for obstetric surgery and the time sensitivity of Maternity care, there is very limited capacity to meet the demand for general Gynaecological surgical cases. Often only minor cases can be scheduled, and there is an ongoing risk that these will be cancelled to cater for an urgent Obstetric case.

Gynaecology services in UHG are developing in line with national strategy and the Department of Health Women's Health Taskforce (2019). Recent and new developments include Ambulatory Gynaecology, Termination of Pregnancy, Reproductive Medicine (Fertility Services), Menopause Clinics, Endometriosis Services and investment in services such as Urogynaecology. As the Level 4 hospital in the Saolta Group, the UHG Gynaecology Department needs to provide infrastructure for these services; however this is not possible within the current UHG Gynaecology infrastructure.

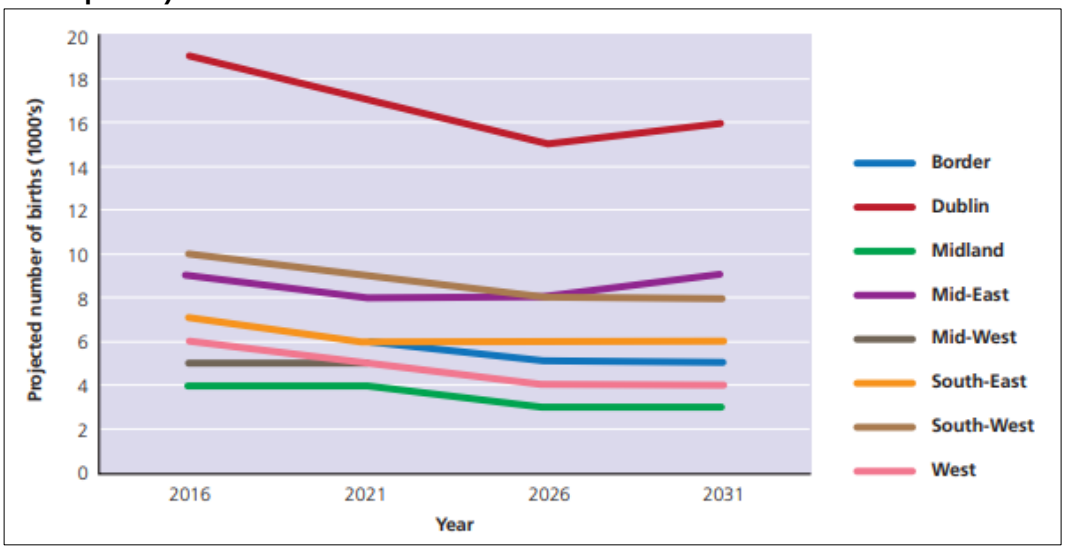
Future demand - Maternity

Hospital management expects the number of deliveries at UHG to grow to 3,500 per annum over the coming years, and to stabilise thereafter, taking into account population and fertility trends, as well as UHG's expanded role in the Saolta Group region when the proposed new facilities come on-stream. Demand would also be driven by the magnet effect, due to patient choice being influenced by the attractiveness of a modern purpose-built facility, on the basis that the proposed project proceeds.

The *National Maternity Strategy 2016-2026*[63] gives projected regional numbers of births, as per the following chart.

[63] https://assets.gov.ie/18835/ac61fd2b66164349a1547110d4b0003f.pdf

Figure 15: Projected numbers of births 2016-2031 on a regional basis (M2F2 assumptions)



Source: National Maternity Strategy 2016-2026

The Strategy predicts falling births in most regions over the coming decade. However, it states:

"The downward trend in numbers of births is expected to continue until towards the end of the next decade, when there may be a slight increase in the numbers of births in some regions. Irish Maternity services must be planned to be able to effectively respond to the demands of birth number fluctuations. Due to the greater uncertainty attaching to regional as distinct from national population projections, the results for individual regions must be regarded as somewhat tentative".

On foot of the *National Maternity Strategy*, details and further clarity were provided to the ED W&C project from the National Service Leads, including the National Health Representatives, on the accommodation requirements for the Women's and Children's departments, including the number of neonatal cots and labour ward suites. It was considered prudent to assess feasibility of a larger project, as inpatient/ambulatory Paediatrics and adolescent facilities were lacking in UHG, and a number of interim projects were identified as required, including additional theatres, birthing suites and neonatal cots. On this basis the proposed project's Women's and Children's Brief was updated, taking cognisance of national strategies, and feasibility study assumptions, to include:

- catering for 3,500 deliveries per annum in the future
- future changes in provision of Maternity services in the Galway/Saolta Group Region
- facilitating increasing numbers of intra-hospital transfers from across the Saolta Group for high-risk complex foetal Maternity cases in UHG (an estimated additional 250 women/births annually)
- facilitating infants/neonates less than 27 weeks gestation, that currently transfer to Dublin hospitals from the Saolta Group region

Future demand - Gynaecology

As indicated, the future demand for Gynaecology Services nationally is developing in response to new government policy, the Cervical Check issue (resulting in the establishment of the Women's Health Taskforce), Ministerial priorities and NWIHP priorities.

In the Saolta Group, and in UHG specifically, this has meant the development of existing services, establishment of several new services, and the planning for further services with a Group-wide remit. The proposed new facilities will provide the additional theatre and inpatient

and daycase capacity to meet the need for a Group-wide Gynaecological Oncology and complex benign Gynaecology service.

UHG is the regional cancer centre for Gynaecological cancers, and currently manages patients from Mayo and Portiuncula University Hospitals, along with a proportion of patients from Sligo University Hospital. The additional capacity in the proposed project (theatre and beds) will allow the transfer of Gynaecological Oncology and complex benign Gynaecology patients from the entire Saolta Group to UHG.

Further increases in demand for Gynaecology services will mainly come from:

- Tertiary referral of Gynaecological Oncology patients from Limerick and Sligo University Hospitals – based on 2021 referral numbers to the Dublin hospitals, approximately 84 additional patients could be referred to UHG per year
- The anticipated rise in birth numbers, which will result in an increase in the number of women requiring Gynaecology services
- The new Gynaecology outpatient and ambulatory services, which will lead to an increase in the number of women requiring surgical intervention as part of their management

3.4 Demand for Paediatric services

Current demand

Activity levels in the Paediatrics Department are as follows:

- A total of 3,633 children were admitted to UHG in 2020, with an average length of stay of 1.83 nights
- 432 adolescents (14yrs – 16yrs) were admitted to other wards in 2021, including mixed gender and adult wards, due to lack of capacity in the current facilities
- in 2019 there were 37 Paediatric transfers to Dublin hospitals to access a higher level of care, specialist surgery and intensive care, due to lack of clinical specialist facilities in Galway. This is a reduction on previous years, following the appointment of additional Paediatric specialists at UHG

Future demand

UHG is the Regional Paediatric Specialist Centre, providing both general and specialist Paediatric services. The specialist Paediatric services include Cardiology, Respiratory, Cystic Fibrosis, Endocrinology, Allergy and Neurology. These services will be provided through a dedicated integrated network of care in the West and North West. This approach will ensure children are treated as close to home as possible and have access to an appropriate level of care, with high quality resources and provided by staff with the appropriate skills.

Paediatric numbers in UHG are projected to increase in line with population and fertility trends. Under the new model of care, Paediatric healthcare services in Ireland will be delivered through an integrated clinical and organisational network of facilities. The network, of which UHG is a member, will consist of a number of interconnected complementary elements in terms of expertise, equipment and operation.

The *National Clinical Programme for Paediatrics and Neonatology* has developed a model of care for Paediatric healthcare services in Ireland, which underpins present and future healthcare delivery for children. The objectives of the Programme are focused on quality, access and value, to ensure high quality standards of care are provided in all Paediatric and Neonatal units nationally, through the development of a Model of Care for Paediatrics and Neonatology. It aims to ensure that all care is provided in the right setting by the most appropriate clinician.

In 2019 the Children's Hospital Group was replaced by Children's Health Ireland (CHI). CHI is an academic healthcare organisation that is leading on the clinical and operational transformation of national acute Paediatric healthcare. The New Children's Hospital (NCH) is the central cog of the National Model of Care for child healthcare in Ireland and will deliver on the core principles of the Model of Care. A care network with a new children's hospital at its centre will aim to reach every community in Ireland through local and regional centres, to deliver comprehensive Paediatric care. UHG is the regional hospital in the Saolta Group and as such will be a crucial part of delivering the new national Model of Care.

A new Model of Care for General Paediatric Surgery has been developed for Irish Paediatric units in close partnership with the RCPI Faculty of Paediatrics and the Royal College of Surgeons in Ireland. Paediatric emergency care is a central pillar of the Paediatric and Neonatal Models of Care, and will be incorporated into the plan for UHG to act as a regional centre.

The use of clinical networks will ensure an integrated approach for General Paediatric Surgery services. A network approach will ensure that children are safely treated as close to home as possible, and have access to the appropriate level of care, with high-quality resources delivered by staff with appropriate skills. The Saolta Group is linking with the Paediatric Network Team Children's Health Ireland and working together to scope and design transformative healthcare for Paediatrics across the Group. Notably:

- The child's level of clinical need will determine how and where they are treated
- The national tertiary centre will accept all children requiring specialised tertiary care in a timely fashion
- Children will be transferred out of the national tertiary centre back to their regional and local units once they no longer require national tertiary-level care.

The shared Model of Care ensures that sick children can be looked after locally when possible and transferred to the NCH only when necessary. This will result in increased Paediatric numbers at UHG.

4. Long list of potential options

This chapter presents the list of all feasible options that could potentially deliver the desired outcomes. These are then initially assessed via Multi-Criteria Analysis (MCA). The Public Spending Code describes MCA as:

"An economic appraisal methodology used to compare a set of options. This method establishes preferences between project options by reference to an explicit set of criteria, weightings, and objectives. It is useful for comparing quantitative and qualitative costs and benefits."

In line with the Public Spending Code guidance on MCA, the long list of options is evaluated by reference to an established set of project objectives and sub-objectives, which are weighted by their relative importance.

4.1 The long list

A long list of options for addressing the capacity deficits described in Chapters 2 and 3 was developed by GUH management. The list, along with the rationale for inclusion, is as set out in the following table. Sections 4.2 and 4.3 present a detailed description of the proposed project, and of the Do Nothing/Do Minimum option.

Table 5: Long list of options, description & rationale for inclusion

Option		Description	Rationale for inclusion
1	Do Minimum	No major investment beyond that already committed; ongoing maintenance and minimum required investment to maintain operability of existing infrastructure	Counterfactual against which other options tested
2	Do Project	Deliver the new ED W&C project as described below in a single phase on the designated site	This is the proposed project; rationale is set out in Chapters 2 and 3
3	Do Phased Project	New ED delivered and W&C elements completed to Shell & Core with subsequent fit out in a later phase	Delivering the proposed project on a phased basis is worth investigation, given the scale and cost of the project, if Exchequer finances were to become constrained
4	Do Project elsewhere - on campus	Deliver the new ED W&C project in a single phase, on the site of the surface carpark at the front of the campus	The proposed project is earmarked for an intensely utilised site and involves works to clear the site. An alternative, less intensely used site, such as the surface carpark, is worth investigation, to determine if it is preferable, taking the full range of clinical, cost and other considerations into account
5	Do Project elsewhere - MPUH	Deliver the new ED W&C project in a single phase on the MPUH campus	MPUH is a less densely occupied campus and has been identified as a potential site for a new elective hospital in Galway[64]
6	Do Alternative - W&C only	Retain Temporary ED and build only the new W&C facilities on the designated site	A combination of the Temporary ED currently under construction with new W&C facilities is worth investigation, to determine if the extra cost of a new ED is justified

Note: All options including Do Minimum incorporate delivery of the Temporary ED and new OPD at MPUH, which are under construction or committed. Source: GUH.

[64] KPMG et al., 2019, Op. Cit. See Box 1 in Chapter 2 for further discussion.

It is worth noting that in 2016 a CBA of a similar range of options for delivering an earlier version of the project was undertaken, in compliance with the 2013 Public Spending Code. That CBA concluded that delivery of the ED W&C project, fully fitted out in a single phase, was the strongest performing option. However, in the context of funding constraints at the time, an option that delivered the new ED initially, with the W&C floors built to shell and core for fit out at a later date, was recommended.

4.2 The proposed project

The proposed ED W&C project comprises a new six storey acute block for the UHG campus. The objective is to address a number of core infrastructural deficits which currently inhibit the quality of services being delivered across the Emergency, Maternity and Paediatrics Departments. The block comprises:

- The ground floor will accommodate a new ED to include clinical areas and ancillary support spaces. The proposal allows for all single cubicles and a significant increase in capacity in terms of resuscitation and treatment bays and for a clinical decision unit which is not currently in the hospital

- The first floor will include -

  - a Clinical Decision Unit (CDU)
  - Acute Surgical Assessment Unit (ASAU)
  - Acute Medical Assessment Unit (AMAU)
  - Pre-Admission Area / transit area (post ED/AMAU/ASAU), and a
  - Bereavement suite

- The second floor will accommodate -

  - The Labour & Delivery Unit, including an alongside Birth Unit
  - Operating Theatres Suite
  - Maternity Day Assessment Unit, Foetal Assessment Unit, and
  - On-call accommodation

  The proposal allows for an increase in delivery suites and an increase in theatre capacity for Obstetrics & Gynaecology, from one theatre currently to three theatres (including emergency). It will bring the quality of accommodation to an appropriate standard to support a positive birth experience, and achieve appropriate levels of access to theatre for scheduled and unscheduled Maternity & Gynaecology services on site, an issue which has occupied the hospital Risk Register for many years.

- The third floor will accommodate -

  - A Level 2 Neonatal Unit
  - Gynaecology inpatients
  - Gynaecology day ward, and
  - Centralised staff changing facilities

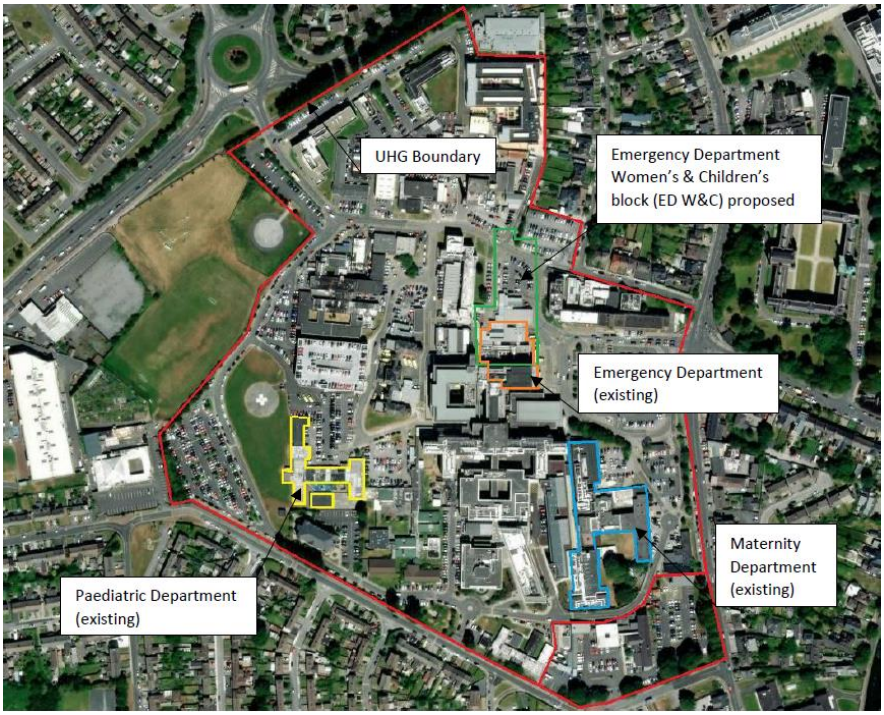
  The proposal would increase neonatal unit capacity from 14 to 26 spaces in total with the modern space requirements provided in individual cubicles

- The fourth floor will accommodate the Ante-Natal and Post-Natal inpatient departments

- The fifth floor will contain the Paediatric Day Ward and Paediatric In-Patient Ward and include additional capacity. The day ward will contain two single rooms, a twin room and a four-bed room. The inpatient ward will be subdivided into four Paediatric zones for Infants, Pre-School, Primary School and Adolescents. There will be a 2 bed High Dependency Unit

As well as addressing capacity deficits, the proposal provides for significantly improved physical linkages and proximity to existing emergency, critical care and diagnostic services in the main hospital. Women's & Children's services are currently provided on the periphery of the site, at opposite ends from one another, and at a remove from general hospital activity and supports (see following graphic).

Figure 16: UHG Site Plan indicating existing Departments and proposed new ED W&C block



Source: HSE West

The proposed project will see all these facilities delivered to full fitout, in a single phase. If it proceeds as planned it is expected that the new ED W&C block will be operational in 2030.

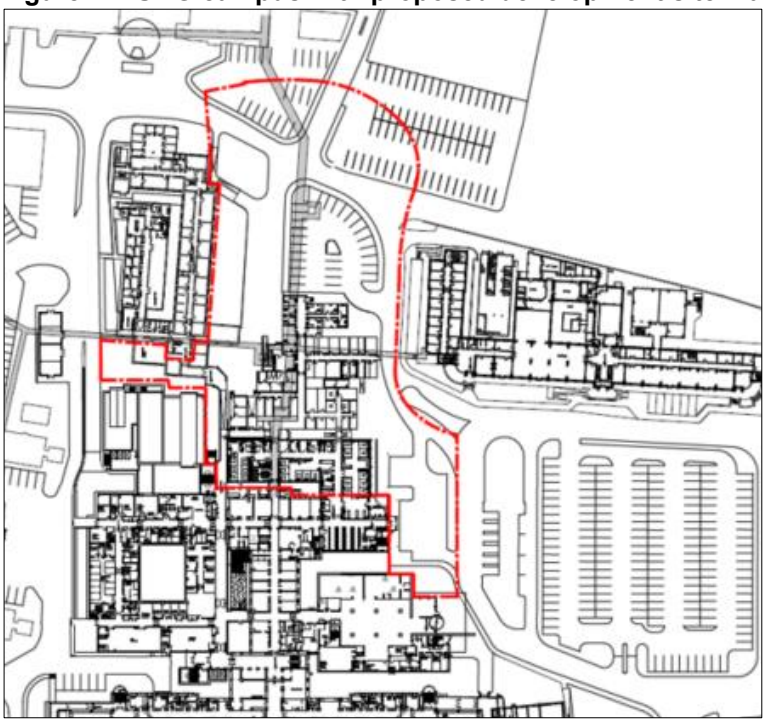
4.3 Do Nothing/Do Minimum

In addition to the range of potential project options, a 'Do Minimum' option is also included in the long list. While this is an option in itself, it is also the counterfactual against which the other options are tested. A Do Nothing option involves making no changes to the currently existing infrastructure. The Do Minimum option generally involves the minimum investment to keep the existing infrastructure operational, along with any already committed investment and any unavoidable future investment.

The Public Spending Code states that:

"While the impact of the do-nothing must always be understood and interrogated as part of the appraisal process, an unrealistic do-nothing scenario should not be used as the project counterfactual as it will artificially inflate the incremental benefit of undertaking more ambitious projects …… In such a scenario, a more realistic counterfactual is the do-minimum"

Figure 17: UHG campus with proposed development site marked



Source: HSE West

Discussion with GUH management indicates that in the current context Do Nothing is not feasible, given the inadequacies of the existing infrastructure, and the fact that certain investments are already underway or are committed.

A possible Do Minimum option is refurbishment of the existing facilities. However, this was not considered to be feasible, due to:

- a prolonged project timeframe and a lack of alternative space to accommodate attendees and patients
- the loss of capacity that would be entailed in meeting SARI guidelines for the refurbished space, in a context where existing capacity is already inadequate

Therefore, the Do Minimum option has been defined as follows:

- No major investment beyond that already committed
- ongoing maintenance and minimum required investment to maintain operability of existing infrastructure
- the Temporary ED (TED) under construction on the UHG campus and the new OPD planned for the MPUH which is committed. Their costs are not included in the analysis as they are sunk or committed costs, not only for Do Minimum but for all the longlisted options

4.4 MCA methodology

MCA is a decision-making tool that generally follows a well-established process[65], that identifies preferences between project options by reference to an explicit set of criteria and objectives. These should reflect:

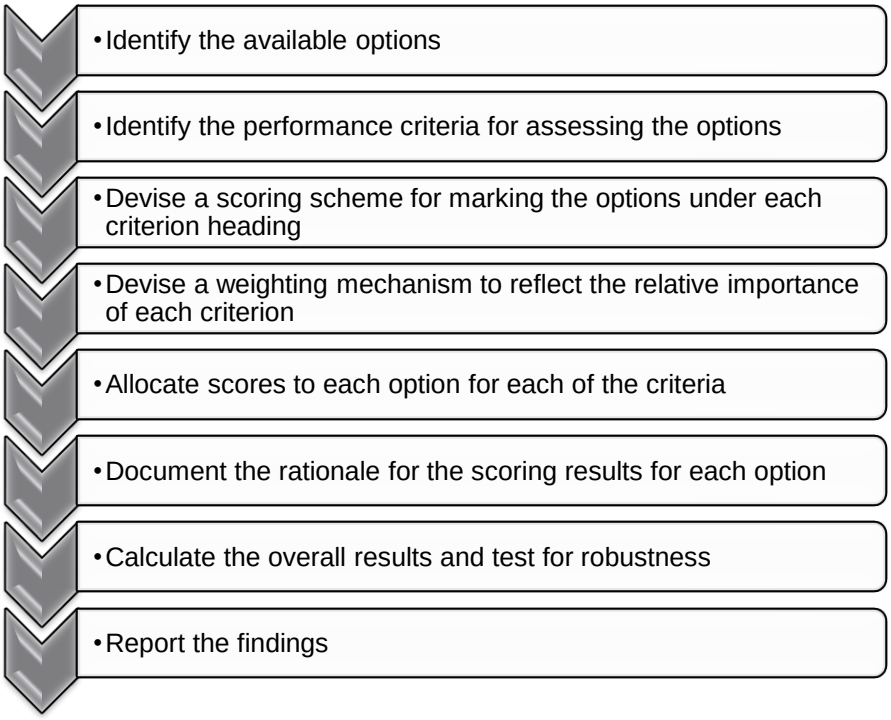
- Policy/programme objectives

[65] Drawn from Public Spending Code *Overview of Appraisal Methods and Techniques* https://assets.gov.ie/43559/7b11c37290a44eceb1d59459abf4deb2.pdf and UK Department for Communities and Local Government (2009), *Multi-criteria analysis: a manual* http://www.communities.gov.uk/documents/corporate/pdf/1132618.pdf .

- Project objectives
- Value for Money in terms of costs and benefits
- Social criteria, and
- Environmental criteria

Identifying the criteria used to compare options is crucial. Each criterion must be measurable, i.e., it must be possible to assess, at least in a qualitative sense, how well a particular option is expected to perform in relation thereto. Formal MCA techniques also provide an explicit weighting system for the different criteria which captures their relative importance.

Figure 18: Main steps in MCA process



Source: Public Spending Code

Thus, the key steps in MCA involve development of:

- A set of Criteria, based on the objectives and sub-objectives of GUH in its development of ED W&C project for the UHG campus
- Weightings were then assigned to each criterion based on its relative importance; the sum of the weights = 100%
- A Scoring System consistently applied across all the options and criteria

All MCA approaches involve the exercise of judgement, in terms of establishing the objectives and criteria, estimating the relative weights and to some extent, to judging the contribution of each option to each performance criterion. It is essential that the process of arriving at the criteria, weights and scores is based to the maximum degree possible on objective data and to the degree that subjective judgement is used, its rationale is documented in detail.

MCA criteria/objectives and weights

Setting the objectives for a proposed project is the first step in any decision-making process. These represent the criteria against which long-listed options can be judged. The extent to

which these objectives/criteria will be met by the long list of options constitute a key component of this MCA.

The key objectives identified by the project promoters, taking into account Public Spending Code guidance, are set out in the table below. A discussion of their importance and the rationale for their inclusion is presented in Appendix B.

Having assembled and discussed the criteria against which the proposed project will be assessed, the next step is to decide how important each criterion is. This is achieved by assigning a weight to each criterion and sub-criterion, with the weights adding to 100. Criteria and weights were arrived at via workshops involving GUH management and clinical personnel, HSE Estates and the EY team.

Table 6: MCA Criteria/objectives and weights

	Criterion	Weighting out of 100
1.	**Strategic Fit**	
1.1	National healthcare policy	4
1.2	Regional (Saolta Hospital Group) healthcare policy	4
1.3	National & regional development policy	2
	Subtotal	**10**
2.	**Compliance with project objectives, i.e. healthcare benefits**	
2.1	**ED**	
2.1.1	Clinical and operational effectiveness and efficiencies	17
2.1.2	Compliance with standards	9
2.2	**Women's & children (Maternity & Paediatric)**	
2.2.1	Clinical and operational effectiveness and efficiencies	17
2.2.2	Compliance with standards	9
2.3	Wider healthcare benefits	
2.3.1	Attraction/retention of staff ED	2
2.3.2	Attraction/retention of staff W&C	2
2.3.3	Other – wider healthcare benefits across Saolta Group	4
	Subtotal	**60**
3.	**Value for Money**	
3.1	Capital costs	6
3.2	Operating costs	6
3.3	Wider cost savings	3
	Subtotal	**15**
4.	**Feasibility**	
4.1	Affordability	2
4.2	Scope	1
4.3	Deliverability, including planning risk	2
4.4	Project complexity	1

	Criterion	Weighting out of 100
4.5	Timeline/construction delivery	1
	Subtotal	**7**
5.	**Social criteria**	
5.1	Impact on accessibility	2
5.2	Impact on equality	2
	Subtotal	**4**
6.	**Environmental criteria**	
6.1	Carbon footprint & energy	2
6.2	Built environment & regulation	1
6.3	Other - noise, dust, traffic congestion etc.	1
	Subtotal	**4**
	Grand total	**100**

Source: EY, in consultation with GUH & HSE Estates

Scoring system

MCA scoring involves comparing the performance of a range of options for achieving the same set of objectives against explicitly stated criteria, having assigned in advance a weighting to each criterion based on its perceived relative importance to the overall evaluation.

Each option is awarded scores between 0 and 100, depending on how well it addresses the criterion in question. In order for the results to reflect the relative importance of these criteria, each score is then multiplied by the weight assigned to the criterion. All the weighted scores or points are then added, enabling a ranking of the options.

Who assessed the MCA

Scoring was carried out by a panel of experts from different subject-matter areas who are key stakeholders in the proposed development, who collectively also form the project Steering Group. Each provided objective input as to what score they believed each relevant sub-criterion should receive. In advance of this process, EY, GUH Management and HSE Estates met with the key stakeholders and panel of experts to clearly inform them of the options for assessment and scoring, and the relevance of the criteria and sub-criteria. The panel of experts and their roles are as follows:

Table 7: MCA Panel of experts and roles

Name	Title & Role	Affiliation
Ms Ann Cosgrove	COO Saolta Group	Saolta Group
Ms Chris Kane	GUH Manager	GUH
Mr. John Morrisson	Clinical Director, MCAN	GUH / Saolta Group
Ms. Ramona McLoughlin	Clinical Director Medicine	GUH / Saolta Group
Mr Tom O' Gorman	Associate Clinical Director	GUH
Mr. John O' Donnell	Lead Emergency Department	GUH

Name	Title & Role	Affiliation
Ms. Marie Burns	Director of Nursing	GUH
Ms. Helen Murphy	Director Of Midwifery	GUH
Ms. Deidre O' Brien	Assistant Director of Nursing, ED & Acute Medical Unit	GUH
Ms. Mary Herzig	Associate Clinical Director Paediatric	GUH
Mr. Kevin Clarkson	Clinical Director Surgery	GUH
Mr. Tony Baynes	Finance Manager	GUH
Ms. Mary Hynes	HR Manager	GUH
Mr. Donal Gill	HSCP Representative	GUH
Mr. Joe Hoare	Assistant National Director Capital & Estates	HSE
Ms. Gráinne Cahill	Estates Manager	HSE
Mr. Darren McCormack	Estates Project Manager	HSE
Ms. Helen Hanrahan	Nurse Planner, GUH	GUH

4.5 MCA analysis results

Unweighted scores

Each option was considered and scored according to the progress it made towards the agreed objectives. The unweighted scores were derived at the workshops involving GUH management and clinical personnel, HSE Estates and the EY team. Detailed results of the process are presented in Appendix B.

Weighted scores

Applying the criterion weights to the unweighted scores generates the MCA weighted scores for the options. The overall scores and resultant ranking of the options are set out in the following table and graph. Detailed results are presented in Appendix B.

Table 8: MCA weighted scores and ranking of options

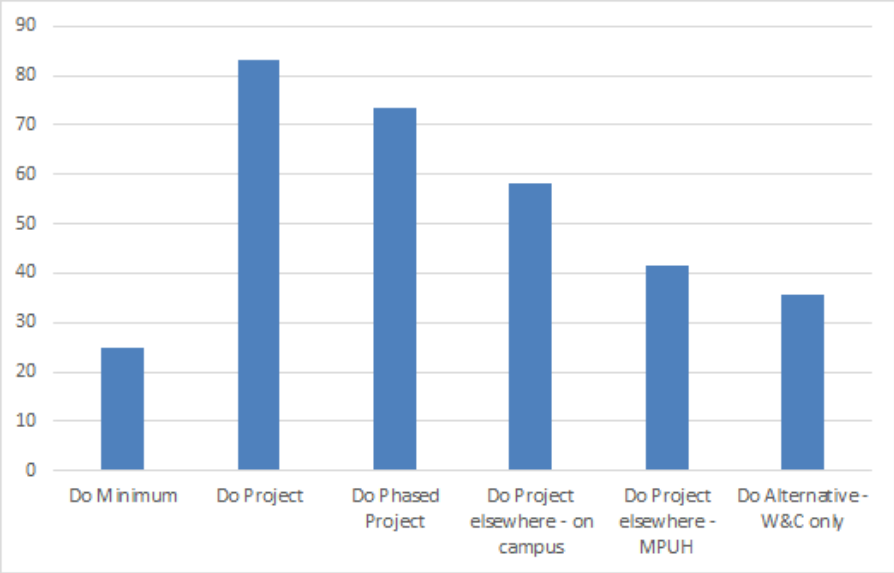
Option		MCA weighted score out of 100	Ranking
1	Do Minimum	24.9	6
2	Do Project	83.0	1
3	Do Phased Project	73.4	2
4	Do Project elsewhere - on campus	58.2	3
5	Do Project elsewhere - MPUH	41.4	4
6	Do Alternative – W&C only	35.5	5

Source: EY, in consultation with GUH & HSE Estates

The results indicate that the strongest-scoring options are:

1. Option 2, Do Project, reflecting the coming on-stream of all healthcare benefits in a single phase, on a site with optimal integration and relatively lower planning risk
2. Option 3, Do Phased Project
3. Option 4, Do Elsewhere on Campus

Figure 19: MCA weighted scores and ranking of options



Source: EY, in consultation with GUH & HSE Estates

4.6 Sensitivity testing of results

While the weights assigned to the criteria, on which the options are evaluated, are generated by GUH management and clinical personnel in consultation with the EY team, they retain an element of subjectivity, given their nature. If the outcome of an MCA is not very decisive, changes in weights can have a significant impact on the result.

A sensitivity analysis was conducted which tested a significant change in emphasis, whereby value for money becomes relatively more important, and compliance with project objectives becomes relatively less important. Such a scenario might apply where the Exchequer budgetary situation became more constrained. The criteria weights used in this scenario are as follows:

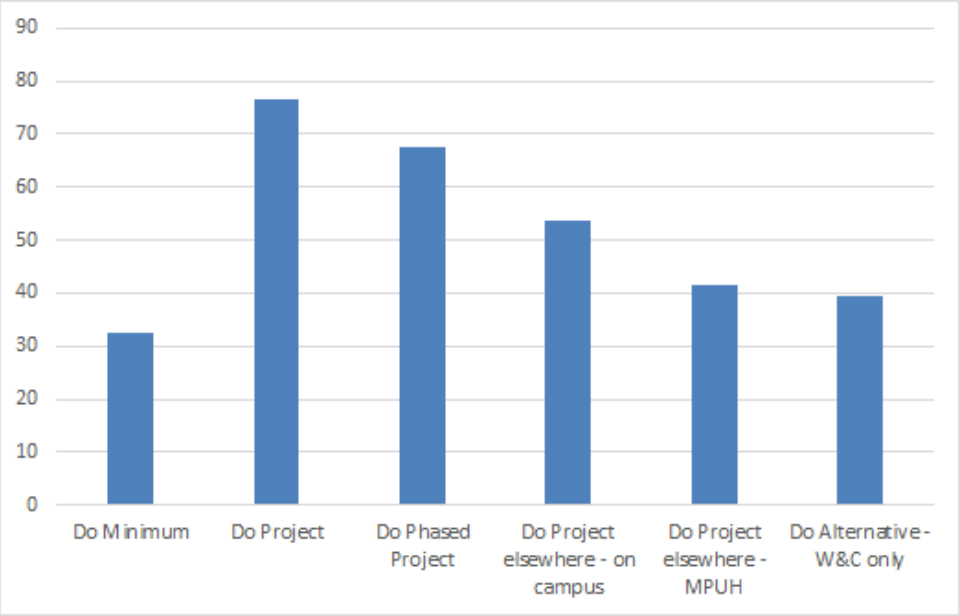
Table 9: Adjusted criteria weightings for scenario analysis

Criterion		Base case weighting	Adjusted weighting
1	Strategic Fit	10%	10%
2	Compliance with project objectives, i.e., healthcare benefits	60%	45%
3	Value for Money	15%	30%
4	Feasibility	7%	7%
5	Social criteria	4%	4%
6	Environmental criteria	4%	4%
	Total	**100%**	**100%**

Source: EY, in consultation with GUH & HSE Estates

The results of this scenario test leave the ranking of the options unchanged, and in particular, Option 2, Do Project remains the strongest-performing option, as captured in the following graph. This gives reassurance of the robustness of the results.

Figure 20: MCA weighted scores and ranking of options – scenario analysis



Source: EY, in consultation with GUH & HSE Estates

4.7 Conclusions of MCA

The outcome of the MCA of the long list of options is as follows:

- Option 2, Do Project, is a strong option and scores highest among the range of feasible options. This reflects the coming on-stream of all healthcare benefits in a single phase, on a site with optimal integration and relatively lower planning risk
- Option 3, Do Phased Project, is the next strongest performing option, followed by Option 4, Do Elsewhere on Campus
- Other options perform poorly relative to these three
- Sensitivity analysis, giving relatively stronger weight to value-for-money over healthcare benefits, did not alter the ranking of the options

Should Approval to Develop the Proposal be granted at the end of the SAR stage (Gateway Decision 0), the long list of options will be brought forward to the Preliminary Business Case stage. The MCA will then be repeated in order to arrive at a shortlist which will be subject to detailed financial and economic appraisal.

5. Costs, affordability, and risks

This chapter incorporates:

- Assessment of the potential range of costs involved, both financial and economic
- Early assessment of affordability and sources of funding, in the context of available resources (including the medium-term capital envelope)
- High level assessment of feasibility, risks and mitigation steps
- Lessons learned from ex-post evaluations of previous similar projects
- Logic path model framework

5.1 Potential range of financial and economic costs

Financial costs and benefits

The proposed project is a major investment, involving estimated capital expenditure of in excess of €400 million spread over a number of years, and additional operational expenditure of approximately €40 million per annum. Hospital management has identified a number of potential additional revenue income streams on foot of the proposed project, including:

- Private consultant income and patient income are expected to increase due to availability of rental space and demand for new facilities from private patients; these have been estimated to generate additional income of €1 million per annum (2021 prices)
- Increased income relating to private day cases and an increase in ED-related income, due to increased hospital capacity
- Women's & Children's-related claims averted. A conservative assumption that a 10% reduction in risk would be achieved as a result of the new Maternity Department, and thus over time a 10% reduction in claims and related costs, would amount to a saving of €0.42 million per annum
- Some savings from avoided hospital transfers
- Reduced HR costs as a result of improved facilities and working environment, as recruitment and retention of staff will improve

These savings if realised have the potential to make inroads into the net additional revenue cost of the proposed project. They are based on an initial evaluation - a detailed Cost Benefit Analysis (CBA) will be conducted as part of the Preliminary Business Case if the project is granted Approval to Develop the Proposal on foot of this SAR.

Economic costs and benefits

Wider socioeconomic costs and benefits will also be generated by the proposed project.

During the construction period, it can be expected that some additional campus disruption, traffic congestion, noise, dust, and emissions to air will be generated, although project management will seek to minimise these impacts. Once the new facilities become operational, some additional traffic congestion and emissions can be expected, due to the increased level of activity on campus.

There will be impacts on the campus's carbon footprint also, during both the construction and operational phase, although the decarbonisation of the overall economy will act to reduce the

latter over time. In addition, as discussed, the carbon footprint will be reduced by the adoption of NZEB standards for the proposed newbuild.

Substantial socioeconomic benefits can be expected, in terms of:

ED

- risks with current facilities addressed
- reduced waiting times for patients
- reduced inpatient length of stay as a result of reduced waiting time in ED
- Improved dignity for patients as a result of increased capacity
- improved ED patient experience
- improved care for resuscitation patients due to expanded resuscitation area
- improved facilities for management of bereavement

Women's & Children's Department

- increased capacity – inpatient and gynaecological theatres
- higher quality facilities and accommodation
- ability to cater for higher complexity cases
- reductions in HCAIs and laboratory costs
- improved adjacencies with acute care
- centralisation of clinical areas and more efficient utilisation of staff
- reduction in patient costs associated with out-of-Group transfers
- ability to address waiting lists in a timely way

5.2 Affordability and sources of funding

The following discussion considers the healthcare investment funding approval process, as well as identifying funding commitments to the proposed project. This gives the context for the affordability of the proposed project.

As indicated, the proposed project would involve capital investment of in excess of €400 million, along with significant increased annual revenue costs. It would thus represent a significant ongoing financial commitment by the Exchequer. By comparison, the HSE's total capital allocation for 2020 was €904 million, while that for 2021 was €983 million[66].

Healthcare investment funding process

The HSE's multi-annual Capital Plan is a programme for the delivery of the HSE's capital programme, reviewed annually[67]. It must be approved by the Board of the HSE and requires

[66] HSE Capital Plan 2021, Op. Cit.
[67] The onset of Covid 19 has had a significant impact on the Capital Plan for 2020 and 2021. HSE Capital Plan 2021, Op. Cit.

the approval of the Minister for Health, with the consent of the Minister for Public Expenditure and Reform.

Individual healthcare projects seeking Exchequer funding are submitted in the first instance to the HSE National Capital and Property Steering Committee[68]. The main functions of the Committee are to:

- Appraise project submissions
- Recommend projects for inclusion in the multi-annual Capital Plan
- Recommend project initiation/allocation of funding
- Advise on the formation of the Capital Plan
- Ensure alignment between the National Service Plan and the Capital Plan

At the time of writing, the criteria for project inclusion by the Committee in the Capital Plan are that the proposed project should:

- Align with government priorities as set out in *Building on Recovery: Infrastructure & Capital Investment Review 2016 - 2021*[69], Sláintecare, the Department of Health's *Health Capacity Review*[70] and Project Ireland 2040
- Show good fit with strategic service planning context, including National, Regional and Care Group Initiatives and known service development funding
- Address service capacity deficit
- Align with HSE objectives and priorities and National Service Plans
- Address significant Health and Safety or other critical risk issues
- Not duplicate an existing service that could fill the service need appropriately
- Have the ability to unlock a greater resource through the commitment of a relatively small capital investment or give effect to an established partnership arrangement
- Require to be progressed within a limited timeframe due to a compelling external constraint of a statutory, legal or contractual nature
- Be capable of achieving an early construction start date, in certain cases

The discussions in Chapters 2, 3 and 4 of this SAR demonstrate how the proposed project addresses these criteria.

Once approved, implementation of the Capital Programme is primarily the responsibility of the Head of HSE Estates. Approval to proceed with a project prior to any expenditure requires the formal written approval of the Head of HSE Estates.

5.3 Feasibility, risk and mitigation

Major healthcare investment projects, and major public investment projects in general, are subject to significant levels of risk, in terms of both design/scope and delivery. The issue of delivery risk will be addressed in more detail in the course of developing the project through

[68] This discussion draws on HSE Health Business Services, 2018, *Capital Projects Manual & Approvals Protocol* HBS Estates.
[69] https://assets.gov.ie/9967/171045a52627428eb387a2ccff21db84.pdf
[70] https://www.gov.ie/en/publication/26df2d-health-service-capacity-review-2018/

the Preliminary Business Case and the Final Business Case stages. From the current perspective, the following discussion covers at a high level the issues of:

- Feasibility/deliverability
- Delivery risks
- Addressing Optimism Bias
- Integration with UHG Development Control Plan

Feasibility/deliverability

Deliverability is primarily focussed on the feasibility of the proposed project, and any barriers there may be to project delivery. This covers issues such as:

- Affordability
- Scope and complexity
- Planning risk, and
- Project timeline

There follows a brief discussion of these. More detailed discussion is presented in Appendix B, the MCA of the long list of options.

Affordability

This is to be an Exchequer-funded project; affordability has been specifically addressed in Section 5.2.

Scope & complexity

The scope of the proposed project has been described in Chapter 4. The proposed project is complex, involving construction in the centre of a crowded campus, with the requirement to clear and decant a number of existing services and other required enabling projects, to clear the proposed project site.

Planning risk

Planning risk relates to the risk that the project will not gain planning permission, or that the permission will impose restrictions on the project, that may inhibit the delivery of the project "vision".

If the project progresses to the next project lifecycle stages, the HSE Estates and Design Team will consult with An Bord Pleanála (ABP) to seek a determination on whether the Bord considers the proposed development to be a Strategic Infrastructure Development (SID). Where a development is determined to be a SID, the Local Planning Authority (Galway City Council in this case) is a statutory consultee as part of the process, and is limited to making a submission. Ultimately ABP will make the decision on the planning application.

While the proposed project will have some planning risk, given its size and complexity, because it involves building on an existing acute HSE campus and in line with the Development Control Plan for the hospital, planning risk should not be excessive. Delivery risk is discussed in more detail below.

Timeline/construction delivery

If approved, the proposed project would be expected to commence construction in Q2 2026 (subject to Planning Approval and funding), and become operational in 2030.

Delivery risks

Delivery risks for a project of this size and complexity are potentially substantial. In order to identify the likely delivery risks and the actions required to mitigate against them, GUH management and HSE Estates have developed Design Risk and Clinical Risk Registers. Abstracts from these registers are presented in Appendix C.

On a busy Level 4 acute hospital campus like UHG, the most significant project risks lie below ground. Underground services, known and unknown, live or otherwise, and services critical to the daily operations of the campus carry substantial risk, potential for project delays and significant additional construction costs. To mitigate these risks, enabling works projects are planned to clear the ED W&C site, to divert out all services within the site, so that any potential services encountered during project construction are not live or critical to UHG and can be removed without any additional costs or delays to the project.

Addressing Optimism Bias

Optimism Bias is another major potential source of risk for public sector investment projects. It refers to the propensity for project promoters and analysts to overestimate the benefits associated with a project (e.g. overestimating the demand for the new facilities) and to underestimate both project costs (investment and operational) and delivery timelines. Internationally, there is a significant body of evidence pointing to a systemic tendency for Optimism Bias across all project types in both the private and public sectors[71]. In an Irish context, the experience to date with delivery of the New Children's Hospital has been well-publicised, and is discussed later in this chapter.

The Public Spending Code requires that the potential of Optimism Bias in project analysis be fully addressed. Further discussion on how Optimism Bias will be addressed in later stages of the project lifecycle is presented in Chapter 6.

Integration with UHG Development Control Plan

Alignment with the hospital's Development Control Plan (DCP) is key to addressing deliverability and risk. Meeting clinical needs in the short to medium term as identified in the DCP is critical, as is providing high quality facilities within close proximity to existing buildings.

The proposed project is in line with the DCP expansion plan for the UHG campus, and as discussed addresses serious deficits in ED, Maternity and Paediatric facilities and capacity. UHG was originally developed in the 1950s, and in the intervening years has seen considerable expansion and change, with new, replacement and refurbishment works projects delivered. Furthermore, as a Model 4 Acute Hospital campus, UHG has significant, critical and essential infrastructure across the site. In consideration of the project scope and the essential physical linkages to the main hospital, the only suitable location for the development is on the site of the existing ED and outpatient prefabricated units. The delivery of the proposed project is therefore complex, both in terms of clearing the site and ensuring there is no disruption to ongoing hospital activities and services.

The proposed project requires several advanced enabling works contracts to be completed before the main project works commence construction, including:

- Clearing the full development site/zone to be able to build the new ED W&C block. This includes the removal of the prefabricated units on site and all above-ground infrastructure
- Construction of a new Energy Centre, which will also facilitate the diversion of the main ESB incoming supply through UHG and remove it from the ED W&C site

[71] For example, Flyvbjerg, B., 2011, "Over Budget, Over Time, Over and Over Again: Managing Major Projects", in *The Oxford Handbook of Project Management*. Oxford: Oxford University Press. https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199563142.001.0001/oxfordhb-9780199563142

- Internal road realignment to divert the existing roads outside the ED W&C site and also facilitate a new public transport corridor for the west of Galway city through the site, at the request of and in consultation with the National Transport Authority and Galway City Council
- Diversion of underground services and infrastructure
- Replacement carparking to replace the loss of existing spaces required for the project, and
- Significant enabling works, particularly in terms of improvements to the existing electrical and mechanical services and other utilities, to maintain a fit-for-purpose infrastructure in support of current and future development and activities at the site

In addition, two important capital investment initiatives are in train, which will support and enhance ongoing service operations (these do not form part of the proposed ED W&C project brief and are separate stand-alone developments):

- A Temporary ED (TED) is currently being delivered on the UHG campus, under current Emergency Covid-19 legislation & regulations (SI 93 & SI 113)
- Additionally, a new Outpatient Department (OPD) block is being progressed for the MPUH campus, at a cost of €10 million

Regarding the TED, advanced site works to realign internal roads and carparking were completed in Q1 2021, and a building works contract was awarded to deliver the new TED building (rapid build solution). Works commenced on site in July 2021 and all works are programmed for completion within 12 months, at which point the existing ED will relocate into the new TED. The overall investment cost is approximately €13 million for this project. This TED will also allow the clearance of the new build ED W&C site.

While the TED building was originally intended as a decant building to facilitate clearance of the new ED W&C Block site, largely on the site adjacent to the existing ED, the Covid emergency necessitated the repurposing of the TED building to:

- improve patient flow
- achieve segregation of the Covid 19 (Red Pathway) and non-Covid (Green Pathway) streams
- address the immediate safety and risk concerns about isolation associated with the current layout of this facility, and
- provide some additional floor space to comply with current ED Service requirements

The TED will assist in reducing ED waiting times, reduce some of the immediate clinical risks associated with overcrowding, infection prevention and control, and improve patient experience. However, due to the significant site constraints at UHG, and the timescale urgency arising from Covid, the TED project will not address the deficiencies in the clinical space required to cater for the numbers of patients attending the ED.

The proposed new OPD will allow patients to access diagnostics, face-to-face consultation, procedures and treatment with medical staff, nursing staff, allied health, and technician staff. The brief is to provide 47 consulting rooms[72] and ten virtual OPD clinic booths which allow the Clinician to integrate care services in the patient's home, together with all the necessary support accommodation. Efficiencies will be delivered by reconceptualising the service to deliver care through 'telemedicine' and virtual clinics. These new types of clinic-delivery, designed by the Outpatient Services Performance Improvement Programme (OSPIP)[73] in association with the clinical programmes, will be enabled by an intelligent referral management system. This new OPD project will:

- increase overall OPD capacity

[72] 38 Consulting rooms, OPD and four Cystic Fibrosis OPD and five treatment rooms.
[73] https://www.hse.ie/eng/about/who/acute-hospitals-division/outpatient-services-performance-improvement-programme/

- help to decongest the UHG campus, and
- free up space for the proposed ED W&C Block, currently occupied by temporary OPD facilities

The planning application was lodged to Galway City Council for the MPUH OPD in September 2021. Planning permission was granted on 28th October 2021 with the intention of progressing to the construction phase in Q2 2022, subject to HSE Estates Corporate approval and funding, and having the new facility operational in Q2 2023.

5.4 Lessons learned from ex-post evaluations of previous similar projects

This section considers the lessons learned from other large-scale health projects, pertaining to key risks encountered, in developing a project specific risk mitigation strategy. Consideration has been given to other healthcare projects across the country, and a detailed review of past projects at UHG has been undertaken particularly in consideration of the complexity of the site and as an Acute Model 4 hospital.

Past projects on UHG campus

UHG has experienced significant development across the campus since first coming into service in the 1950s. Early projects were of considerably less risk due to the undeveloped nature of the campus. In today's design terms and construction methodologies, many of these old buildings were significantly over-engineered, with significant below-ground structural reinforced concrete sub-structures to form the foundation elements, in consideration of the varying and often poor ground conditions at UHG.

The services and underground infrastructure used Asbestos Containing Materials (ACMs), including lagging to underground heating pipes. In many instances, new projects were constructed directly over live or redundant services and civil infrastructure. Some of the redundant services, cabling etc. would not have been removed as this may not have been required to deliver the project in question at the time. However this has potential to add risk to future projects where such services are encountered and their status is unknown. Materials and buried waste (concrete, incinerator waste; fire ash, ACM lagging, food waste, packaging etc.), which in the past might not have been classified as a risk or hazardous, may now potentially be re-classified as hazardous materials or other non-standard construction/demolition waste.

Further to the lessons learned as outlined in the following discussion, and as part of the overall project governance for the proposed project, a risk mitigation strategy has been developed which focuses on potential project-specific risks. This exercise ensures that a provision of realistic contingency budgets to deal with such risk is included within the overall capital cost for the project.

A detailed ED W&C project specific Design Risk Register has been developed by the project Design Team (see Appendix C, Table C1). This includes:

- Risk identification - risk description and consequence
- Risk management - management actions taken and planned

This is a live working Risk Register and will continue to be updated and evolve throughout the design stages of the project. This will also include analysis to apply a scoring to each risk, to consider the likelihood of the risk event occurring, as well as the potential impact to cost and programme, and the likelihood of recourse by the contractor under the construction contract.

The risk analysis for the project recognises that:

- Certain risk events and their consequences are transferred to the Contractor under the construction contract, and

- In any dispute associated with risk events the client may bear the cost of some of the issues which arise

As the Risk Register is evaluated at each of the project stages, unrealised risks will be removed and the risk assessment updated. The outcome of this assessment will establish suitable risk and contingency provisions specifically for the Main Construction works.

Risk can be defined as a budgetary allowance, which is held outside of the agreed contract sum for the delivery of the main construction works. The risk provision is used to deal with events or conditions which may occur between the period of accepting/agreeing the contract sum with the Main Contractor, and the completion of the works on site. These events or conditions have the potential to delay the commencement of works, or increase or alter the defined scope thereof.

The Design Team has currently included provision for a contingency of 5% of the construction cost estimate as a budgetary allowance, which is held outside of the agreed contract sum for the delivery of the main construction works. The contingency provision is used to deal with events or conditions that may occur during the construction phase of a project, which may alter the defined scope of works.

The risk mitigation strategy and the various risk assessments conducted to date were undertaken at a particular point in time, and were deemed appropriate at this juncture. Advanced enabling works contracts are also being developed and will be a key aspect of the risk mitigation strategy, as discussed above.

Recently completed ED investments in Ireland

The designs for the University Hospital Limerick (UHL) and the Mater Hospital EDs were considered in detail by the Project Steering Group, HSE Estates, and the Design Team, in the development of the proposed brief and current preliminary design developments. Feedback and lessons learned from these two development have been received in terms of:

- functional content (number of resuscitation and treatment bays)
- existing and projected activity
- service throughput by speciality, and
- other relevant factors

Both UHL and the Mater have expressed the view that their EDs have capacity issues, due to patient volumes and the current streaming, segregation and social distancing under the Covid-19 guidelines, as well as additional cleaning requirements, which impact on turnaround times for cubicle spaces.

Resuscitation areas were highlighted as a concern at UHL; while there were sufficient resuscitation bays, additional stepdown monitored beds were needed for the volume of patients presenting. The Mater, which was designed based on 40,000 attendances per annum, noted that facilities did not meet needs pre-Covid. This has been further compounded by the pandemic, which the hospital is currently seeking to address by developing a 28-bay clinical assessment area and six additional resuscitation bays, to support the safe functioning of the ED.

Both hospitals discussed at length the issues associated with Infection Control & Prevention and cleaning, as it is taking double the time to clean a cubicle to meet Covid requirements, and this is reducing effective capacity. This is also an issue at the existing UHG facilities, where cubicle cleaning time has doubled from 20 to 40 minutes. This reduces the number of patients who can be assessed and treated, unless more space is made available. The Mater also expressed the view that, based on projected attendances, UHG should factor in or provide 12 resuscitation bays, and allow for 5% demand growth per annum.

New Children's Hospital

As part of the overall risk mitigation strategy for the project, a full review of the recommendations set out in the New Children's Hospital report "*Independent Review of Escalation in Costs*" [74], was undertaken. The Contracting Authority is aware of the need to ensure appropriate provisions are made to safeguard against such occurrences on the current proposed project. The following sets out how key NCH report recommendations have been incorporated into the management and design of the proposed project:

"Assess and quantify risks comprehensively, including risks that relate to the chosen procurement and contracting strategy"

The ED W&C development will be a traditionally procured project and will be governed by CF1 Public Works Contract for Building Works designed by the Employer, underpinned by a fully designed, fully coordinated set of Works Requirements.

To further de-risk the project, a significant amount of advance/enabling works has taken place on the site, together with a number of exploratory site surveys relating to existing site services, asbestos, and ground conditions/contamination. Through the careful implementation of these advanced works the potential risk associated with the site environment has been greatly reduced, and thus creates a much more attractive proposition to tendering parties.

"Include rigorous scenario analysis that establishes the range of potential outturn positions based on the identified risks"

In the context of construction risk the detailed risk evaluation process outlined above has addressed this issue. Risk analysis was also undertaken on the other cost centres which are part of the overall Capital Development budget, i.e., design team fees, equipment and other costs. These were reviewed, and a score applied for:

- Probability of the event occurring
- Potential cost impact, and
- Potential time impact

Considering each budget provision in this way has enabled a corresponding risk and contingency provision to be generated and included with the overall Capital Development budget.

"Provide much greater clarity as to the basis of Capital Development Budget estimates and their maturity/vulnerabilities"

In recognition of the over-reliance on Design Team members highlighted in the PwC report, external peer reviews will be undertaken to critically assess key components of the works requirements as they are developed, to ensure that all documentation is fit for purpose.

Peer reviews will also be carried out for the Mechanical and Electrical (M&E) services, Building Information Modelling (BIM), construction programme and construction cost, to be assessed through a comprehensive benchmarking analysis. In addition, the key elements of the architectural design such as the façade, internal glazed screens, secondary steelwork etc. will be reviewed to ensure adequacy of design and appropriateness of detailing.

This will be further extended to the Bill of Quantities, where an independent review will be undertaken, ensuring that the primary pricing document is measured and described strictly in accordance with agreed rules of measurement.

"Explicitly define the contingency that is included in Capital Development Budgets, its basis and intended use"

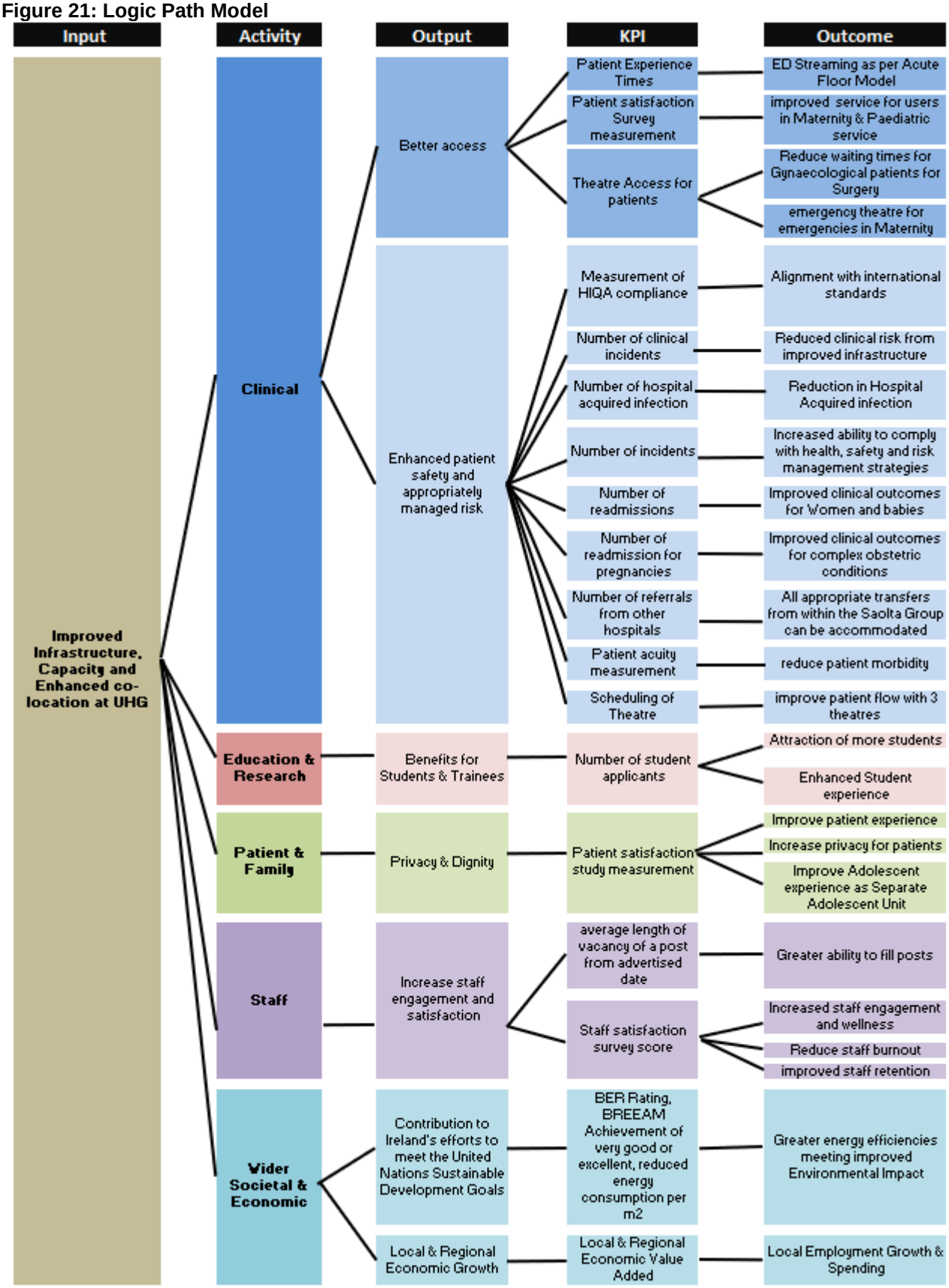
[74] PwC (2019), New Children's Hospital: Independent Review of Escalation in Costs. https://merrionstreet.ie/merrionstreet/en/news-room/releases/20190409_nch_report.pdf

Given that contingency cannot be built into the public works construction contract using a contingency sum, provisional sums, or provisional quantities, it is imperative that appropriate contingency provision is retained by the project outside of the agreed contract sum. The Design Team has assessed the likelihood of an event or condition arising during the construction stage which would affect the scope of the works as defined within the Works Requirements.

5.5 Logic path model framework

The Public Spending Code requires project promoters to develop a framework for determining KPIs for the proposed project, such as a logic path model. Overleaf a first draft of this model is presented. Logic Path Models are live documents and will evolve with the project as it moves through the project lifecycle.

Figure 21: Logic Path Model



Source: GUH/HSE Estates

6. Appraisal plan

Should the proposed project gain Approval to Develop the Proposal (Decision Gate 0), it will progress to the next stage in the project lifecycle, the Preliminary Business Case (PBC). The key purpose of the PBC is to determine the optimal option for delivering on the project objectives, which would then go forward for detailed design and tendering, under the Final Business Case (FBC) stage.

This chapter sets out how the project will be appraised as part of the PBC, including the proposed methodology for:

- Deriving short-list from the long-list of options
- Financial & economic appraisal and sensitivity and scenario analysis
- Approach to pricing risk and factoring in optimism bias

The appraisal plan also details data to be used, assumptions made and technical parameters.

6.1 Methodology for generating the shortlist of options

Chapter 4 presented the long list of feasible options and undertook an MCA of these options. The analysis indicated that the proposed project was the best performing of the available options. MCA is the most appropriate evaluation technique at this stage of the project lifecycle, given the level of information available, particularly in terms of upfront and operating costs, and benefits measurement.

When the proposed project becomes subject to PBC, the MCA will be repeated, based on the up-to-date understanding of the project and information at that stage. From this will emerge a shortlist, comprising the best performing options, as well as the Do Minimum option, which is the counterfactual against which the others are evaluated. It would be expected that the shortlist would comprise two to three options, plus the counterfactual.

6.2 Methodology for project appraisal

In the PBC, an updated detailed current and future Demand Analysis would be undertaken, to confirm the need for the investment, and then Options Appraisal would be undertaken. In the current context, in line with Public Spending Code guidance, Options Appraisal would be in the form of Cost Benefit Analysis (CBA). This would comprise both a financial appraisal and a socioeconomic appraisal of the short-listed options.

The financial appraisal would evaluate the options from the perspective of Exchequer cashflow, i.e. the cost and benefits of the project to the public purse. Evaluation would be over 30 years and the public sector borrowing rate[75] would be used to discount future cashflows. It can be expected that the financial appraisal will generate a negative outcome, since the benefits are mostly of a socioeconomic nature, and are not captured via patient charges or other sources of income.

The socioeconomic appraisal incorporates the wider social and economic benefits of the options, mainly patient health benefits. It incorporates the shadow price of public funds, capturing the cost to the economy of raising project funding from taxation and/or borrowing. Costs and benefits are evaluated over 30 years, using the social discount rate of 4% to discount future flows as per the Public Spending Code.

[75] https://www.gov.ie/en/policy-information/1a0dcb-project-discount-inflation-rates/?referrer=/en/project-discount-inflation-rates/

KPIs to flow from the CBA include:

- Net Present Value (NPV), the net flow of costs and revenues over the evaluation period, discounted to the present
- Internal Rate of Return (IRR), the rate of return earned on the project i.e. the discount rate/interest rate at which benefits net of costs equal zero
- Benefit Cost Ratio (BCR), the ratio of the present value of benefits to the present value of costs, and
- Payback Period (PP), the number of years taken to earn back the initial capital investment, in discounted terms

The Public Spending Code requires that the financial appraisal reports the Financial Net Present Value and Internal Rate of Return (FNPV and FIRR), while the socioeconomic analysis reports the Economic Net Present Value, Rate of Return, Benefit Cost Ratio and Payback Period (ENPV, ERR, EBCR and EPP). The strongest performing of the options is generally identified by the highest ENPV.

6.3 Methodology for pricing risk & factoring in optimism bias

Project risk

As discussed, delivery risk is a significant consideration for large, complex projects such as the proposed ED W&C investment. Among the considerations under this heading are design risk and planning risk. Design risk can be defined as:

"the potential for a design to fail to satisfy the requirements for a project. Designs that are fundamentally flawed, infeasible, inefficient, unstable, or below client standards. A poor design may manifest itself as functional defects or hurdles to development that impede project progress." [76]

Planning risk relates to the risk that the project will not gain planning permission, or that the permission will impose restrictions on the project that may inhibit the delivery of the project "vision". This could for instance be due to height or access restrictions imposed by the planning authorities.

These risks will be addressed by GUH management allocating appropriate internal resources to the project, and by hiring experienced project design and project delivery teams. Full implementation of the Public Spending Code, as well as the use of appropriate detailed project implementation guidance provided by the Office of Government Procurement (OGP) in the CWMF, which will also act to mitigate project risk. See further discussion in Chapter 5.

An important risk management tool – as discussed also in Chapter 5 - is the Risk Register. This identifies risks, attaches severity and probability scores to each, identifies mitigating actions and allocates these to particular team members. This is a live document which will be reviewed and kept up to date as the project progresses.

Optimism Bias

As indicated in the previous chapter, Optimism Bias refers to the propensity for project promoters and analysts to overestimate the benefits associated with a project and to underestimate both project costs (investment and operational) and delivery timelines.

In some jurisdictions, including Northern Ireland[77], public spending guidelines require a specific adjustment to capital cost and timeline estimates to capture the effect of Optimism Bias, based on the type and nature of the project and historic experience. Recommended percentage uplift ranges are provided in the UK Treasury's "Green Book"[78], in terms of

[76] https://simplicable.com/new/design-risk
[77] https://www.finance-ni.gov.uk/publications/optimism-bias-calculators
[78] Supplementary Green Book Guidance – Optimism Bias https://www.gov.uk/government/publications/green-book-supplementary-guidance-optimism-bias

duration and cost, for standard and non-standard buildings (a “specialist hospital” is given as an example of a non-standard building), as per the following table.

Table 10: UK Green Book Optimism Bias recommended project cost and duration uplift range

Project type	Project duration %	Capital expenditure %
Standard building	1-4	2-24
Non-standard building	2-39	4-51

Source: UK Treasury

While this is not the approach taken in Ireland, the Public Spending Code requires that the potential of Optimism Bias in project analysis be fully addressed. With this in mind, the Order of Magnitude cost estimates for the proposed project allow for contingencies and excess construction inflation over the expected delivery timeline for the project. As these are Order of Magnitude costs, they will be subject to potentially significant variation as the project progresses through its lifecycle, specifically the Preliminary and Final Business Cases.

With regard to Optimism Bias on benefits, future demand estimates for the facilities to be delivered under the proposed project are driven by:

- Existing level of demand and the projected evolution of demand based on demographic trends
- Pent-up and frustrated demand, as reflected in current treatment waiting lists, ED PETs and the current level of transfers of complex cases to Dublin hospitals
- Future developments within the Saolta Group, such as changes in functions of other hospitals and the increasing focus on primary care, and
- National level changes such as Sláintecare, the National Trauma Strategy, etc.

As with costs, these issues will be kept under ongoing review throughout the stages of the project lifecycle.

6.4 Data, assumptions, and technical parameters

Data

Looking forward to the PBC and FBC, the key focus in terms of data gathering will be Demand Analysis and Options Appraisal. The data requirements and their main sources under each of these heads are set out below. The main sources for this data will be HSE Estates, GUH management and clinical staff, the project design team including cost consultants, and the CSO.

The main Demand Analysis data requirements will be:

- Current and recent historical trends in terms of users of the relevant services and waiting times and lists
- current and projected future demographics, particularly in terms of age and socioeconomic profile of the population served
- known developments that may impact on these (for example significant increases in local primary healthcare capacity or changes in government healthcare policy such as Sláintecare)

The main Options Appraisal data requirements would be:

Financial:

- Capital costs net of VAT

- Residual value of buildings at the end of the evaluation period
- Opportunity cost of land
- Additional payroll & non-payroll running costs
- Infection control savings
- Additional revenue income and savings, such as private patient charges, and avoided utilisation of private healthcare facilities to address deficiencies and waiting times
- Reduced HR costs due to greater ease of attracting and retaining staff, and reduced reliance on agency staff, because of better work environment
- Reduced costs of subsequent care related to excessive ED waiting times

Socioeconomic:

- Additional health benefits to patients, including -
  - improved quality of care and experience
  - improved patient safety, dignity & privacy, and
  - better infection control and prevention
- Reduced waiting times for treatment and InPatient Length of Stay (IPLoS)
- Additional earnings of ex-patients due to better health outcomes
- Benefits accruing to patients' families - reduced suffering/distress/disruption, and saved time due to patient health benefits
- Additional pollution, congestion, and disruption from construction and operating of new facilities

Assumptions & technical parameters

The key parameters/assumptions that will underpin the project appraisal process, and the key sources for this information, including those set out in the following table.

Table 11: Key parameters/assumptions underpinning project appraisal, and sources

Parameter/assumption	Data source
Future socioeconomic and demographic profile of the hospital catchment, and how this translates into demand for services	GUH, HSE Estates, CSO
Future healthcare delivery structures	Sláintecare, other health policy documents/strategies
Future inflation rates applying to the main upfront and ongoing cashflows, including payroll	Public Spending Code, macroeconomics forecasts
Project evaluation period, Useful Economic Life of assets and related residual values at the end of the evaluation period	Public Spending Code, academic literature[79]
Opportunity costs/shadow prices of land, labour, and public funds	Public Spending Code, local property market indicators
Exchequer borrowing interest rates and social discount rates	National Development Finance Agency guidance[80]
Future values of time, in relation to valuing reduced waiting times and shorter IPLoS	Time values developed for evaluating transport projects[81]
Values of improved inpatient accommodation and increased inpatient capacity	Proxied by the charges levied on private patients in a 5th Schedule Hospital, under the Health (Amendment) Act 2013[82]
Translation of reduced ED waiting times to reduced IPLoS	Academic literature[83]
Translation of improved patient outcomes to benefits for families	Public Spending Code, academic literature[84]

[79] For instance http://principlevaluation.com/estimating-useful-lives-of-assets/ and http://healtharchitects.org/documents//hfm%20feature%20story%20(Oct.%202009).pdf

[80] Exchequer borrowing rates and social discount rates, general and payroll inflation can be sourced from https://www.gov.ie/en/policy-information/1a0dcb-project-discount-inflation-rates/?referrer=/en/project-discount-inflation-rates/

[81] https://www.tiipublications.ie/library/PE-PAG-02030-01.pdf .
Also Common Appraisal Framework https://www.gov.ie/en/organisation-information/800ea3-common-appraisal-framework/

[82] http://www.irishstatutebook.ie/2013/en/act/pub/0031/print.html#sched1

[83] For instance Liew D, *et al.,* 2003, "Emergency department length of stay independently predicts excess inpatient length of stay". *Med J Aust* 2003; 179: pp.524-526. http://www.ncbi.nlm.nih.gov/pubmed/14609414.

[84] For instance Mervin MC & Frijters P, 2014, "Is shared misery double misery?" in *J. Soc Sci Med.* 2014 Apr; 107; pp.68-77. https://www.ncbi.nlm.nih.gov/pubmed/24607668.

7. Outline governance plan

This chapter:

- identifies the Sponsoring Agency and Approving Authority for developing the proposal further
- sets out, at a high level, key structures, project roles and responsibilities
- sets out an indicative programme timeline for the proposed project

7.1 Sponsoring Agency and Approving Authority

The Sponsoring Agency for the proposed project is the HSE. The Approving Authority, on the basis that the capital cost will be more than €100 million, is the Government, in effect the Department of Health. As the project is expected to cost more than €100 million, the Department of Public Expenditure and Reform (DPER) would have a review role at each stage of the project life cycle, and produce review reports that would feed into the approval process.

7.2 Key project structures, project roles, and responsibilities

The approach to project delivery has been discussed in Chapters 5 and 6. In terms of project management structure, the Steering Group for the proposed project is as set out in the table overleaf. Within 12 months before the completion date, an Operational Steering Group will be established, which will deal with staffing and equipping etc. via monthly meetings.

Table 12: Proposed project Steering Group

Name	Title & Role	Institution
Ms Ann Cosgrove	COO Saolta Group	Saolta Group
Ms Chris Kane	GUH Manager	GUH
Mr. John Morrisson	Clinical Director, MCAN	GUH / Saolta Group
Ms. Ramona McLoughlin	Clinical Director Medicine	GUH / Saolta Group
Mr Tom O' Gorman	Associate Clinical Director	GUH
Mr. John O' Donnell	Lead Emergency Department	GUH
Ms. Marie Burns	Director of Nursing	GUH
Ms. Helen Murphy	Director Of Midwifery	GUH
Ms. Deidre O' Brien	Assistant Director of Nursing, ED & Acute Medical Unit	GUH
Ms. Mary Herzig	Associate Clinical Director Paediatric	GUH
Mr. Kevin Clarkson	Clinical Director Surgery	GUH
Mr. Tony Baynes	Finance Manager	GUH
Ms. Mary Hynes	HR Manager	GUH
Mr. Donal Gill	HSCP Representative	GUH
Mr. Joe Hoare	Assistant National Director Capital & Estates	HSE
Ms. Gráinne Cahill	Estates Manager	HSE
Mr. Darren McCormack	Estates Project Manager	HSE
Ms. Helen Hanrahan	Nurse Planner, GUH	GUH

Source: GUH management

The table overleaf captures the indicative programme timeline for the proposed ED W&C project on the basis that it proceeds as planned, estimated as of early April 2022.

Table 13: Project indicative programme (Do Project option)

		Months	Start	End	Comments
SAR	Strategic Assessment Report		Mar '22	Apr '22	Submission to Approving Authority in April; DPER 1 months
PSC	Preliminary Business Case		May '22	July '22	Submission to Approving Authority in May; DPER 3 months
1	Preliminary Design	3	June '22	Sept '22	Based on approval to proceed and complete Stage 1 from Estates Corporate in May 2022
	HSE 4.2 - Review 2 - Stage 1 Approval	1	Oct '22	Oct '22	
2a	Scheme Design	6	Nov '22	Apr '23	May need to consider Planning application (Stage 2b) to proceed in parallel and combine Stage 2b/c -
	HSE 4.2 - Review 3 - Stage 2a Approval	1			
2b	Developed Design & Planning	6	May '23	Oct '23	Planning submission in 'Q3-Q4 2023?
	HSE 4.2 - Review 4 - Stage 2b Approval	1	Nov '23	Nov '23	
			Oct '23	June '24	TBC ABP - Strategic Infrastructure Development - 9 Months period
2c	Detailed Design & Tender Documentation	9	July '24	Mar '25	PSC - Final Business Case to be drafted and developed in parallel with Stage 2c
PSC	Final Business Case - Decision Gateway 2 - Pre-Tender Approval	6	Feb '25	July '25	Provisionally including 3 months approvals period
	HSE 4.2 - Review 5 - Stage 2c Approval	1	Aug '25	Aug '25	
3a	Tender	5	Sept '25	Jan '26	
PSC	Final Business Case - Decision Gateway 3 - Approval to Proceed	6	Dec '25	May '26	Provisionally including 3 months approvals period
	HSE 4.2 - Review 6 - Stage 3 Approval	1	June '26	June '26	
3b	Contract Award	1	July '26	July '26	
4	Construction	30	Aug '26	Jan '29	
5a	Handover	3	Feb '29	Apr '29	
5b	End of Defects Liability	12	May '29	Apr '30	

Notes:	The timelines shown for submittals and approvals periods in compliance with the Public Spending Code are indicative. There is no guidance on review/approval timelines once submittals are lodged with DPER
	The timeline shown for Planning does not include for any Further Information (FI) requests from ABP, or any delays associated with a refusal of planning.
	Yellow = Submittals required to DPER in accordance with the Public Spending Code
	Blue = HSE Estates Corporate project stage review submittals for approval to proceed to the next stage

Source: HSE Estates West

8. Conclusions

This Strategic Assessment Report has presented the case for the proposed new ED, Women's and Children's Development on the UHG campus. The report has:

- Described the proposed project, and presented the rationale and justification for it
- Demonstrated the project's strategic relevance in terms of healthcare and wider public policy
- Described the current and future demand for the facilities in question, in the socioeconomic context of GUH's catchment
- Set out a long list of potential options for addressing the shortcomings of the existing infrastructure, and subjected these to a Multi-Criteria Analysis, the result of which indicates that the proposed project scope is the strongest-performing option
- Undertaken an initial review of project cost, affordability, and risks
- Set out the appraisal plan and an outline governance plan for the proposed project going forward through the next Decision Gateways

The analysis confirms that the investments embodied in the proposed project are necessary to address the significant infrastructure deficits in the ED and W&C departments at GUH, and enable the delivery of better services to the population of Galway and the wider region, in line with government healthcare policy.

Accordingly, the Sponsoring Agency recommends that the Approving Authority grants Approval to Develop the Proposal for the project, which would bring it to the next stage in the project lifecycle, i.e. the Preliminary Business Case.

Appendix A: Letters of support

The proposed project has the support of key stakeholders, including:

- National Clinical Programme in Emergency Medicine
- National Women and Infants Health Programme
- The National Cancer Control Programme (NCCP)

Letters of support from these bodies are presented overleaf.

At a meeting on 18th November 2019, the HSE Deputy National Director Acute Operations sought additional information in the context of the scale, scope and costs of the ED & Women's & Children's proposal, and was advised that an updated feasibility study would be conducted. The related correspondence between HSE Acute Operations and the Saolta Group CEO is also presented overleaf.

National Clinical Programme in Emergency Medicine,
RCSI Clinical Programmes Office,
2 Proud's Lane,
St Stephens Green,
Dublin 2
Email: emp@rcsi.ie

Ms Chris Kane,
General Manager,
University Hospital Galway,
Saolta University Health Care Group.

Date: 24th January 2020

Cc: Ms Helen Hanrahan, Nurse Planner ED & Women's & Children Capital Development

Dear Chris,

Thank you for providing the National Emergency Medicine Programme with the opportunity to review the plans for the new Emergency Department at University Hospital Galway, an exciting time and long awaited development for both the patients and staff.

We are delighted to note that the design is generally consistent with the recommendations of relevant strategy documents, including the Reports of the National Emergency Medicine Programme (2012), Irish Association for Emergency Medicine (2007), and A Trauma System for Ireland (2018) and the Acute Floor Model of Care.

We write to confirm that we support the design for the new Emergency Department shown.

Kind regards

Dr Gerry McCarthy
National Clinical Lead
National Emergency Medicine Programme

Ms Fiona McDaid
Nurse Lead
National Emergency Medicine Programme

National Women and Infants Health Programme
Health Service Executive, The Dargan Building,
Heuston South Quarter, Dublin 8

Clár Sláinte Náisiúnta do Mhná & do Naíonáin
Feidhmeannacht na Seirbhíse Sláinte, Aonad 7A,
Áras Dargan,An Ceantar Theas, Baile Átha Cliath 8

BY EMAIL ONLY

To: **Mr Tony Canavan**
CEO
Saolta Healthcare Group

Date: 5th February 2020
Re: Physical Environment Galway University Hosptial

Dear Tony,

The National Women and Infants Health Programme (NWIHP) have a role in relation to the physical environment for maternity services, as set out in the National Maternity Strategy.

In this context, we have visited all the maternity hospitals/units over the past number of years, and have a good sense of the challenges faced on each site.

We engaged with your colleagues in Saolta regarding the physical infrastructure for the maternity, gynaecology and neonatal service in Galway University Hospital (GUH) from early 2018. We are aware of the plans for the new development proposed over the new ED on the GUH site, as well as other discussions about increasing capacity in the neonatal unit.

From an NWIHP perspective there are a number of issues with your current environment:

- The current maternity infrastructure is old, has insufficient space and clearly does not meet the needs of the women in the Galway region;
- With the current infrastructure, GUH cannot be the tertiary hospital for maternity care in Saolta. This means that women from within the Saolta region are being referred to Dublin for tertiary care;
- Following the recruitment of additional neonatologists, GUH is now a level 2 neonatal unit. However, your physical infrastructure is inadequate for the demand from within Saolta, and neonates are still being transferred to Dublin;
- As has been previously identified there is only one elective theatre for obstetrics and gynaecology, which is clearly inadequate for the demand;
- As the tertiary hospital within the Saolta Group, GUH does not have the capacity for the tertiary gynaecology demands of the region, and with the limited theatre capacity there are now significant waiting lists;
- Although the paediatric service is not within the remit of NWIHP, it is clear that the paediatric ward cannot comply with the standards of the paediatric programme, and the ward is located along way from the emergency department and the main hospital.

National Women and Infants Health Programme
Health Service Executive, The Dargan Building,
Heuston South Quarter, Dublin 8

Clár Sláinte Náisiúnta do Mhná & do Naíonáin
Feidhmeannacht na Seirbhíse Sláinte, Aonad 7A,
Áras Dargan,An Ceantar Theas, Baile Átha Cliath 8

NWIHP is very supportive of the need for the new development to accommodate maternity and neonatal services within the GUH site, and strongly supports the proposed solution above the planned ED.

Of particular concern to NWIHP is the need to ensure that Saolta has a tertiary hospital at the centre of its Maternity Network that can meet the needs of women and infants within the Saolta region.

NWIHP will continue to support this project in any way we can.

Yours sincerely,

Kilian McGrane

Director, National Women and Infants Health Programme

Cc: Prof John Morrison, Clinical Director Women and Childrens Directorate
Ms Ann Cosgrove, COO Saolta

An Clár Náisiúnta Rialaithe Ailse
Urlár 3, Teach Óstaí an Rí, 200 Sráid Pharnell
Baile Átha Cliath DO1 A3Y8, Teil: +353 1 828 7100

National Cancer Control Programme
3rd Floor, King's Inns House, 200 Parnell Street
Dublin 1 DO1 A3Y8, Tel: +353 1 828 7100

Ms Chris Kane,
General Manager,
University Hospital Galway
Galway City

Date: 22nd January 2020

Re: To support development of Paediatric Facilities at University Hospital Galway

Dear Ms Kane,

As you know the creation of a National Children Adolescent and Young Adult (CAYA) cancer network was a central component of the most recent National Cancer Strategy. This network will be developed over the coming years, with the appropriate funding for personnel and infrastructure. Central to this will be the appointment of oncologists / ANPs with CAYA expertise and development of CAYA centres throughout the country.

I am writing to support the planned development of Paediatric Facilities at University Hospital Galway.

This will include the following:

- Development of paediatric inpatient accommodation
- Provision of ambulatory day treatment facility
- Addition of 8 bedded adolescent inpatient facility with a separate adolescent lounge facility

I am inserting a copy of the proposed development on page two for your reference.

If you require any further information, please do not hesitate to contact me.

Kind Regards,

Professor Owen Patrick Smith, CBE
National Clinical Lead for CAYA, NCCP
Consultant Haematologist, OLCHC

Cc. Ms Chris Kane, General Manager, University Hospital Galway
Cc. Dr Ruth Gilmore, Consultant Haematologist, University Hospital Galway
Cc. Dr Januz Krawczyk, Consultant Medical Oncologist, University Hospital Galway
Cc. Ms Anne Matthews, CNM3 Paediatrics, Paediatric Services, University Hospital Galway
Cc. Ms Ann Marie Furlong, Ambulatory Care, CNM2 Paediatrics, University Hospital Galway
Cc. Ms Fiona Bonas, Interim National Director, NCCP
Cc. Ms Eileen Nolan, Programme Manager, NCCP
Cc. Ms Catherine Duffy, General Manager, NCCP

Figure One: Fifth Floor Paediatric Unit Floor Plans for University Hospital Galway

Oifig an Stiúrthóir Náisiúnta Géaroibríochtaí ,
4A Áras Dargan An Ceantar Theas An Bóthar Míleata Cill Mhaighneann Baile Átha Cliath 8

Office of National Director Acute Operations,
Unit 4a Dargan Building Heuston South Quarter,Kilmainham
Dublin 8, Tel: 076 6959951

31st December 2019

Tony Canavan
CEO Saolta University Healthcare Group
Newcastle Road
Galway H91 YR 71

ED Galway University Hospital

Dear Tony,

I refer to the presentation from the Design Team and our subsequent discussion at the meeting on 18th November 2019 in relation to the above.

Context

In 2013, a capital proposal for a new ED with shelled out space for future development at GUH in the order of €90m was put forward for approval and due to the capital funding required, a Cost Benefit Analysis was deemed necessary. The context for the meeting was to understand the outcome of the CBA and the now proposed much larger development with an indicative capital cost in excess of €300m. It was recognised that the new larger footprint and investment would also provide improved accommodation for Women & Infants services and minimise disruption on the GUH campus in the longer term. It was also noted by the Saolta Group that the greatest clinical risks would be addressed by this proposal.

Follow Up Actions

As discussed at the meeting and given the significant additional size, scale, scope and costs of the proposal (i.e. seven story block, associated enabling and decant works), it was agreed that a number of follow up actions are necessary as follows:

1. A clear business case is necessary to support the larger development with particular reference to future proofing for demographics, policies and service delivery. Confirmation is required from the Hospital Group that engagement has taken place with relevant stakeholders and proposals are consistent with policies and strategies including but not limited to Trauma, Maternity, Slaintecare, Elective hospital and clinical care programmes.

2. I understand the group have had subsequent engagement with HSE Estates nationally to understand the technical elements and basis for the larger proposal and to allow HSE Estates determine if a CBA should be undertaken to address significant growth in capital costs and scope.

I look forward to receipt of a comprehensive response and recommendations arising from same to include an analysis and commentary pertaining to the variation in:

-scope and size of ED proposal
- scope and size of other service proposals and clarification if they are replacement or additional
- Phasing and decant programme
- a breakdown of the capital costs associated with all phases including enabling works and decant facilities
- programme of works and timeline for the development subject to availability of funding

Next Steps

When the above detailed assessment is undertaken, I believe it would be prudent for HSE Estates nationally to advise if

(i) a CBA is necessary for the larger development and:
(ii) can planning for a proposal of this size and cost proceed in parallel with a CBA?

I look forward to hearing from you and would welcome an opportunity to discuss the proposal further in early 2020.

Yours sincerely,

_____

Angela Fitzgerald
Deputy National Director Acute Operations

Cc: Jim Curran, National Estates
John Browner National Estates
Mike Bermingham, National Estates
Ann Cosgrove COO Saolta
Joe Hoare Estates

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Saolta
Grúpa Ollscoile Cúram Sláinte
University Health Care Group

Our ref: CEO/JM/E4

Angela Fitzgerald
Deputy National Director
Acute Operations
Unit 4A, The Dargan Building
Military Road
Kilmainham
Dublin 8

7 February 2020

Re: ED Galway University Hospital

Dear Angela,

I acknowledge receipt of your letter dated 31st December 2019 regarding the meeting which took place on the 18th November 2019 whereby you have sought additional information in the context of the scale, scope and costs of the Emergency Department (ED) & Women's & Children proposal presented to you.

The application for a replacement ED highlighted the significant risks associated with the current Emergency Department which is wholly inadequate in terms of isolation, resuscitation, paediatric ED attendances and patient experience times. The current design of the Emergency Department does not meet the necessary infrastructural requirements for the various patient streams and numbers attending.

The inclusion of space for a new/replacement Maternity and Paediatric Department was in the Cost Benefit Analysis (CBA) and would provide flexibility for service adjacencies within the hospital and enable the hospital to address clinical risks in the existing Women and Children's service. The Cost Benefit Analysis recommended Option 4A – constructing a new ED on the site adjacent to the current hospital with the Emergency Department on the ground floor and first floor and Women and children's on four floors above with full fit out of all floors as the favoured option, followed by Option 5A. Option 3A was only recommended, if Option 4A or Option 5A could not progress due to funding.

The Design Team was appointed and in March 2019. A further meeting was held by HSE West Estates and HSE National Estates which requested that the Design Team conduct a feasibility study on the full fit out and design of the Women and Children's element. When the CBA was conducted the final National Maternity Strategy (2016 -2026) had not been concluded and also there were further clinical care models such as the National Trauma Strategy (2019) and Acute Floor Model (2017) which have since been published. Further agreement/consensus was reached on the accommodation brief and requirements for the Women and Children's aspect of the development. This included the number of neonatal cots, number of labour ward suites and also inpatient/ ambulatory paediatrics and also adolescent facilities which currently are not available. From an economic and service perspective, it was agreed to review the project as there were a number of interim projects in Women and Children's Services which would incur additional capital costs on a short to medium term basis. It was considered that it would be better to assess feasibility of a full project.

The ED Brief has been benchmarked against the National Emergency Medicine Programme (2012) and also takes cognisance of the National Trauma Strategy (2019) to ensure that the accommodation delivered meets the current and future needs of the service and is also compliant with revised HBN guidance. Since the original CBA, there has been a Trauma Bypass Protocol put in place for Portiuncula Hospital, which results in all trauma cases coming directly to GUH ED. The new National Trauma Strategy envisages Galway as a Trauma Unit with specialist services and will support the National Major Trauma Centres.

"HSE to consider UHG for designation as a Trauma Unit with Specialist Services within the Central Trauma Network, along with the development of appropriate access and bypass protocols taking into account the role of the hospital in the network". (Report by Steering Group - A Trauma System for Ireland pg. 11 point 11)

Oifig an Phríomhoifigigh Feidhmiúcháin
Saolta Grúpa Ollscoile um Chúram Sláinte
Ospidéal na hOllscoile Gaillimh
Bóthar an Chaisleáin Nua, Gaillimh,
H91 YR71, Éire

Office of the Chief Executive Officer
Saolta University Health Care Group
University Hospital Galway
Newcastle Road, Galway,
H91 YR71, Ireland

Fón
Phone
+353 (0)91 893882 / 893889

Ríomhphost
Email
ceo.saolta@hse.ie

Suíomh Gréasáin
Website
www.saolta.ie

The review of trauma services outlines that there should be equitable access to trauma care and an integrated approach. It is envisaged that there will be two major trauma centres in Dublin and Cork and as outlined above, there is requirement to have designated trauma units of which GUH will be one with its 24/7 Emergency Department and specialist services, which can provide acute trauma services with the exception of patients requiring neurosurgical care.

The proposed development also incorporates adopting the Acute Floor Model of Care concept published in 2017 (HSE). This will ensure efficient streaming of patients at the front door of the hospital via the pathways of the Emergency Department, Acute Medical Assessment and Acute Surgical Assessment Units. The Emergency Department will also have a Clinical Decision Unit, which provides access to relevant Senior Decision Makers and streaming to improve patient experience times. These Models of Care were included in the HSE National Service Plan 2019 and in the Sláintecare Implementation Plan (Department of Health 2018).

The current Emergency Department is currently wholly inadequate for the population it serves. It has both a secondary local care catchment area of 323,000 (Galway and Roscommon 2016 Census) and also since the development of the Saolta Group also provides tertiary care, both elective and emergency. The Saolta Group caters for 800,000 people living in the region. This population is expected to increase, as is the population over 65 years of age and over 85 years of age (Saolta Strategy 2019 -2023, page 21). The significant increase in our older population will lead to greater pressure on acute hospital beds and the Emergency Department. We are attempting to address this through this capital project proposal but also through a range of joint initiatives under the banner of Sláintecare, Frail Older Persons and Chronic Disease Models of Care. The National targets state that 75% of all patients seen in the Emergency Department should be seen/admitted or discharged within 6 hours. In November 2019, we were only achieving a target of 51%. The target for patients over 75 years of age is that 95 % should be discharged or admitted within 6 hours and Galway achieved a target of 27% in November 2019.

The Women and Children's brief which was revisited and updated taking cognisance of national strategies and in conjunction with the feasibility study based assumptions and catering for approximately 4,000 deliveries. This provides for any future changes in provision of Maternity Services in the Galway / Saolta Region and also caters for the high risk complex maternity cases to attend for deliveries in GUH.

This also will facilitate infants/neonates less than 27 weeks gestation that would normally go to Dublin from the Saolta region. UHG have developed a separate Neonatal Consultant rota to support this change in service provision. The existing Maternity and Paediatric facilities date back to the 1950's and are separated on the campus from vital healthcare services such as Intensive Care, Diagnostics and Main Theatre Complex.

Currently, there is only one theatre in Maternity which services both emergency and elective gynaecological and obstetrics, which is a significant risk issue that needs to be addressed. This theatre was upgraded in 2007, however it is below the recommended size for a theatre and there are issues relating to lift access from the labour ward suites on the ground floor and the theatre being on the first floor. The proposed three theatres will address the risks of access and improve ambulatory and inpatient throughput resulting in a more efficient and effective service for Obstetric and Gynaecological patients.

Similarly, the Paediatric facility as already mentioned does not meet current standards and the current Paediatric infrastructure lacks any ensuite isolation rooms. It does not provide adolescent facilities for the 14-16 year olds; these are currently accommodated in single rooms in adult wards. This hospital also has shared Models of Care with Crumlin for cancers and will be one of the designated Children / Adolescent and Young Adults cancer centres. This requires provision of paediatric and adolescent facilities and outreach services for childhood and adolescent cancers.

The Saolta Group have conducted an Options Appraisal for Model 4 Hospital Service Provision in Galway in 2019 which sets out the long term strategy for the provision of the Model 4 Service to meet the requirements for now and the future needs to service both local and secondary care and also tertiary care provision including increasing bed capacity, taking cognisance of the Sláintecare Strategy (2018) to harness efficiency and substitution measures.

This strategy will address current deficits in elective capacity and address current unmet need in the context of addressing lengthy waiting lists and ensuring safety and access to services. The options appraisal recognises that the ED, Women and Children's block is required to ensure the safe provision of services now and in the future until there is funding for a new hospital in Galway and also the phasing includes the provision of an elective hospital in Merlin Park. The Options appraisal Page 12 and 13 reaffirms the requirement for an interim priority development to include the ED block including the Women and Children's fit out.

The Saolta Group Strategy 2019 – 2023 aligns with government policy and seeks to improve patient flow through developing an integrated healthcare system across the region and also through the seven themes of Quality and Patient Safety, Patient Access, Governance and Integration, Education Research and Innovation, E- health and Infrastructure. This strategy references the development of the Acute Floor Model and also the development of the Options Appraisal of the Model 4 Hospital in Galway to identify the necessary infrastructure to deliver safe high quality care for the region and as indicated this supports the development of the ED/Women and Children's block in UHG.

The Programme for Partnership Government – recognised the need for a replacement Emergency Department in Galway stating that this capital investment project be analysed under the 2017 Capital Review Plan with a view to funding construction as part of the capital plan review 2017. This ED development was highlighted as a key priority for Galway at the Project 2040 Launch on government infrastructure priorities "Investment in healthcare for the region includes new dedicated ambulatory elective-only hospital facilities for Galway and development of the Galway Emergency Department and ward block". (April 2018).

The project has increased in scale and scope because of the outcome of the feasibility study and the need to consider recently published National Strategies. This includes the Women and Children's element which represents better value for money in the long term and addresses current risks. We have considered the feasibility study and are of the view that it merits consideration, particularly given that much of the project decant facilities and enabling works are required regardless of the inclusion Women & Children's element.

The ED element has taken into account the Acute Floor and Trauma Model of Care and the Options Appraisal. There is a clear commitment in the project to address one of our most significant risk issues, which is the replacement of the Emergency Department. The project will also help to address our patient experience times and to facilitate the patients we serve with modern appropriate standard of care facilities. We have benchmarked the proposed Emergency Department against recommended norms and included the standard recommended number of resuscitation bays based on 90,000 attendances in ED, 1 resuscitation bay per 10,000(as per IAEM Guidelines). It is to be expected that if a new facility is built that attendances will also increase, however we have put in place streaming models for appropriate pathways of care. There were projected Emergency Department attendances of 68,500 by 2020; the total ED Attendances for 2019 is over 69,000.

As part of the programme and enabling works, it includes the provision of a decant ED in the first phase, the replacement of car parking and the relocation of the modular OPD facilities to Merlin Park University Hospital (MPUH) , which are affected by the new building and necessary demolition / enabling works. The Cystic Fibrosis (CF) adult OPD facility is affected by these works and we have engaged with the CF Association who is willing to contribute financially for a CF Adult OPD facility as part of the MPUH OPD Decant plan.

In respect of point 2, there has been engagement with HSE Estates West and HSE Estates National to review the technical elements and scope of the proposal and associated cost breakdown and also clarifications on replacement vs additional, phasing and whether a further CBA is required.

Please find attached supporting documents:

- Feasibility Study Report - (ED + Women & Children) which includes details below:
  - Project Brief - (Emergency Department Floors)
  - Schedule of Accommodation - (Emergency Department Floors)
  - Project Brief - (Women & Children's Floors)
  - Schedule of Accommodation - (Women & Children's Floors)
  - Accommodation Summary
  - Project Programme - (Enabling Works)
  - Project Programme - (Main Building Works)

- Activity Women and Children's
- Activity Emergency Department
- Letter of support from National Clinical Programme in a) Emergency Medicine b) National Cancer Control Programme for Paediatric Facilities c) National Women and Children's Programme
- Cost Benefit Analysis 2016

Joe Hoare, National Estates has advised the Feasibility Study Report completed in 2019 demonstrates the size and scope of the project proposal. Also included are the Project Briefs and Schedules of Accommodation, which demonstrate the need for the facility along with the proposed size and scope of the project.

A summary of the accommodation is provided which compares the proposed facility against the existing accommodation in terms of bed & trolley numbers.

We also include the construction programmes for the proposed enabling works and main build works. These programmes were prepared on the basis of Design and Construction works progressing on the full development option (i.e. Option 4A of the CBA) and do not take account of any increase in the timelines associated with project review. In relation to the costs of the full project the last full cost report was issued ahead of the meeting in November 2019 this remains the full cost report, discussions are ongoing in relation to the overall project cost.

I trust this provides further clarity for you on the questions you have raised. As discussed and agreed at the meeting in November 2019, planning applications are being submitted for the enabling works associated with this project.

We would appreciate your support on progressing this vitally important ED & Women's & Childrens Project.

Is mise le meas,

Antóin O Ceannabháin/ Tony Canavan
Príomhoifigeach Feidhmiúcháin an Ghrúpa/ Group Chief Executive Officer
Grúpa Ollscoile um Chúram Sláinte Saolta/ Saolta University Health Care Group

Cc. Ann Cosgrove, Chief Operations Officer, Saolta University Health Care Group
Chris Kane, General Manager, Galway University Hospitals
Helena Hanrahan, Nurse Planner, ED Capital Developments Project, Galway University Hospitals
Joe Hoare, National Director, National Estates, Merlin Park University Hospital
Michael Conneely, Estates, Galway University Hospitals
Grainne Cahill, Estates, Galway University Hospitals

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Saolta
Grúpa Ollscoile Cúram Sláinte
University Health Care Group

20th January, 2022

Ms. Angela Fitzgerald
Deputy National Director Acute Operations
Unit 4A
The Dargan Building
Heuston South Quarter
Military Road
Kilmainham
Dublin 8

Our Ref: CEO/JH/E4

Re: ED/Women & Children's Major Capital Development GUH

Dear Angela,

I wish to thank you for our recent meeting and your follow-on correspondence dated 5th January, 2022, in relation to the above project. This project is a critical project for our Model 4 Hospital and the delivery of services in our Region. We welcome your support for this project and note the issues you raise, which we are ensuring are covered in the Preliminary Business Case.

In response to the points you raise, we will ensure that the Preliminary Business case will include:

1. The core assumptions underpinning the development in terms of demographic/relevant policy issues including trauma and associated learning from other ED developments.
2. National Women and Infants Programme / Paediatric Services:

> *"It was agreed that the documentation should reflect the specific provisions for obstetric services and the underlying assumptions on terms of demographic and structural change issues"*

The Business Case for GUH Women's and Children's Major Capital Development has provision for Women's and Children's inpatient and day-case services, consistent with the respective national models of care. This new build will provide infrastructural capacity which is fit–for-purpose for modern service provision and will further enhance the co-location of these services with the Level 4 Hospital and adjacency to the main hospital theatre and critical care complex.

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Maternity Services:

The new build will provide the infrastructure to manage the maternity population of Galway city and county and cater for the high risk births/cases that are referred to a tertiary referral centre, in line with the Saolta Group strategy. 3-5% of the deliveries across the Saolta Group follow the National Maternity Strategy specialised care pathway, so receive some or all of their care in Galway – this translates to 300-400 mothers per year.

It is impossible to predict the trend of delivery numbers for the future in light of demographic changes over the last few years, including migration patterns, the urban to rural shift and the investment in jobs outside of Dublin. Historically, it was anticipated that the birth rate would be in decline, but 2021 birth numbers have increased since 2020. In Galway, there was an 11% increase (n=278 births) and there has been a 7% increase in births across the whole Saolta Group (n=574). In addition, the surge in the birth rate in the early 2000's can be now translated into an increase in number of women in the child-bearing age range, so a further increase in births is expected.

The new build also provides the opportunity to develop the environment for mothers and babies according to the National Maternity Strategy. The Home from Home facilities can be expanded and will provide calm, relaxing homely environments, supporting women's dignity and need for privacy. This infrastructure can then be developed to create Alongside Birth Centres, with additional delivery options for parents, such as birthing pools.

The new build will provide the infrastructure for the management of inpatient, day-cases and emergency presentations. The vacated Maternity Block, which is located close to the new build, will provide the additional capacity required to facilitate expansion of the range of services provided on an outpatient and ambulatory basis, including Ante-natal services, perinatal Mental Health services, post-natal care etc.

> *"It was recommended that the Group submission should consider the implications of the implementation of the national paediatric model for their hospitals"*

The Paediatric Floor will facilitate proper service provision for neonates, infants, children and adolescents, in compliance with national guidelines, and will provide additional dedicated day-case infrastructure, in alignment with the Model of Care. The adjacency to the main hospital will be a significant improvement on the current location and the fit-for-purpose facilities will provide a more suitable environment for the provision of child-centred modern clinical practice. It is envisaged that the general medical and specialty paediatric outpatient services will relocate to the vacated Maternity Block, alongside the maternity outpatient services. There is ability to provide a safe environment for multi-disciplinary paediatric outpatient services with care separated from adult services.

As the CHI Model of Care is implemented and GUH is developed as a Regional Paediatric Surgical Hub, the demand for paediatric services in GUH, from across the Saolta Group, will significantly increase. The development of GUH as a Level 2 Neonatal Unit is already resulting in increased demand for services in GUH and this will further increase with the requirement for additional cots.

Options around upgrading the theatre(s) and inpatient capacity in the vacated Maternity Block, to provide dedicated paediatric theatres and beds for surgical paediatrics, will be explored. It is anticipated that the current demand will increase as GUH develops as the Regional Hub.

3. National Cancer Strategy:

   "The key recommendations for colposcopy/gynaecology services arising from the review of Cervical Check should be reflected in the submission"

Gynaecological Oncology care will be provided for within the new build. Additional capacity and theatre access is required for services to expand according to NCCP Models of Care and to enable services to meet KPIs. For complex cases requiring multi-disciplinary surgical input, the theatre complex in this new build is corridor-linked to the general GUH major theatre complex.

The new build will also provide capacity for inpatient and day-case general gynaecological care with the adjacency of the gynaecology theatre.

Ambulatory and Outpatient gynaecological care will continue to be provided in the vacated Maternity Block. The additional space will allow for expansion of services such as Ambulatory Gynaecology, Colposcopy, Early Pregnancy assessment and Reproductive Medicine.

4. Delivering on Additional Capacity Requirements &
5. Delivering Value

As previously outlined, we are also updating our Development Control Plan for GUH to include our identified requirement for additional inpatient beds, to address current bed capacity/infrastructural deficits, additional critical care beds, additional diagnostics (radiology and laboratory) and also Cancer Ambulatory Services to support our Cancer Centre.

This development, will bring significant benefits for clinical service delivery, including modern single room accommodation, compliance with all current standards for clinical service delivery, models of care, infection prevention and control, and overall improved patient experience.

The site constraints and the requirements to minimise disruption are addressed in the Preliminary Business case as is the VFM of a multi storey vs a single story development.

We expect the Elective Hospital Development to form a core part of the development of the Merlin Park site, together with the development and transfer of OPD services to that site in the coming years, which is fully in line with our plans for the development of the two sites.

Again, thank you for your support for this key project. We plan to complete the preliminary business case incorporating your feedback also in the coming weeks.

Yours sincerely,

Antóin O Céannabháin/ Tony Canavan
Príomhoifigeach Feidhmiúcháin an Ghrúpa/ Group Chief Executive Officer
Grúpa Ollscoile um Chúram Sláinte Saolta/ Saolta University Health Care Group

Appendix B: Multi-Criteria Analysis detailed tables

MCA criteria/objectives

Setting the objectives for a proposed project is the first step in the decision-making process. The extent to which these objectives will be met by the long list of options constitute a key component of the MCA. The objectives identified by the project promoters, taking into account Public Spending Code guidance, are set out in Table B1 at the end of this Appendix, which also includes a discussion of their importance and the rationale for their inclusion.

Unweighted scores

Each option was considered and scored according to the progress it made towards the agreed objectives. The unweighted scores under each criterion are presented in Table B2 at the end of this Appendix, and a brief discussion of the outcomes is set out in the text below. These were derived at workshop involving GUH management and clinical personnel, HSE Estates and the EY team.

Strategic Fit

- Options 2 and 4 score the maximum on this criterion, as they deliver the full scope new facilities on the UHG campus
- Options 3, 5 and 6 score less well, as they either deliver the new facilities with a delay, on a remote campus, or only partly
- Option 1 scores lowest as it does not deliver any of the additional benefits (the TED and MPUH OPD are delivered)

Compliance with project objectives – healthcare benefits

Emergency Department

In terms of clinical and operational effectiveness and efficiencies:

- **Option 2 Do Project** scores the maximum, as it fully delivers on this objective
- **Option 3 Do Phased Project** scores almost as highly, as it fully delivers the new ED, but there would be some loss of effectiveness and efficiency feeding through to the ED as the W&C facilities would be delivered with a delay
- **Option 4 Do Elsewhere on Campus** scores less well on effectiveness and efficiency as the new facilities would be delivered on a less well-integrated part of the campus, and would take longer to deliver, given the state of preparedness of this site, and design and planning issues
- Likewise, Option 5 scores less well as it entails delivery of new facilities on a remote campus (MPUH)
- Options 1 and 6 score poorly as they do not entail delivery of the new ED

In terms of compliance with standards, scores match closely the effectiveness and efficiency scores, but Options 4 and 5 score somewhat better given their delivery of new facilities, albeit remote to varying degrees from the rest of the campus

Option 5 has a number of risks associated with it, on account of its remote location:

- The major risk is that there is no Critical Care in MPUH and all emergencies would have to be transferred by ambulance to UHG. This places the patient, whether adult, child or neonate, at major risk
- There are limited diagnostics in MPUH so all patients requiring cardiac or other investigations would have to be transferred to UHG

- This will also delay the process and patient experience times. The requisite specialist medical personnel would not be available on site so patients would have to transfer to UHG or the medical personnel have to travel to MPUH, causing delay in diagnosis and treatment

Maternity & Paediatrics

The scores under this criterion and sub-criteria match closely those for the ED, except that:

- Option 3 Do Phased project is relatively weaker, as there is a delay in delivering the new W&C facilities, and
- Option 6 performs relatively more strongly as it does deliver the new W&C facilities from the start

Other - wider healthcare benefits across Saolta Group

- The scores for retention of staff reflect the delivery and timing of new facilities under the various options
- Option 2 scores most strongly on this criterion, as it fully delivers on the project objectives and hence can be expected to generate the most wider healthcare benefits
- The other options score less well, as to varying degrees they do not deliver on these objectives
- Option 1 scores lowest on this criterion, as it does not deliver any of the objectives

Value for Money

- The scores for the various options under the Capital Cost and Operating Costs sub-criteria reflect the expected cost range for the options in question
- Option 2 scores poorly, as it is expected to be the most expensive option, after Option 5, which is built on a remote campus and thus requires significant duplication of facilities and thus of resources on both campuses
- By the same token, Option 1 Do Minimum scores strongest on these criteria as it incurs the least amount of additional capital and operating costs

Other savings/income

- Wider costs savings reflect the degree to which new facilities and benefits to patients are delivered across the various options

Feasibility

- Scores under these sub-criteria for the various options reflect those for capital and operating costs, which is closely related to affordability, scope, deliverability and complexity
- Option 4 - Do Elsewhere on Campus, involves building the new block on the existing surface carpark on the front of the campus. Significant planning risk applies as a previous planning application for this site was refused on grounds of height. This option would also take longer to deliver than the other options (including the phased option), given the state of preparedness of this site, and design and planning issues. For this reason, it scores poorly on deliverability and other Feasibility criteria
- Option 4 may be a slightly less complex project to build, given its location. However, there will be a need to provide alternative on-site parking to replace the considerable loss of spaces, and the traffic accessibility and circulation around the front of UHG will be greatly affected. Given the constrained campus and surroundings, replacement carpark space would likely be in the form of a multi-storey carpark, which would have significant cost implications

- Option 5 MPUH scores relatively poorly on most of these sub-criteria. While it may be a somewhat less complex project as the MPUH campus is less constrained and less intensely used than UHG, the requirement to link back to services on the UHG campus would increase complexity once the new facilities become operational. As well as clinical risks there would be an additional cost element for Option 5 as ambulances would have to utilised for all patient transfers between campuses
- Option 3 Do Phased project scores relatively poorly on timeline, as it takes the longest to deliver all of the new facilities
- Option 1 Do Minimum scores strongly across these sub-criteria, reflecting that it involves the least cost and time, is the least complex and carries essentially no planning risk

Social criteria

- Scores on the social criteria reflect the facilities delivered under the various options, and the timelines for such delivery. Hence Option 2 Do project scores strongest while Option 6, Do Alternative - W&C only, scores relatively poorly as the new ED is not delivered

Environmental criteria

- Although new buildings can be expected to be more energy efficient and thus more carbon efficient, larger more complex facilities can be expected to use more energy in overall terms. Hence Options 4 and 5 score lowest in terms of carbon footprint while Option 1 scores highest
- By the same token, newbuilds will be more compliant with building and clinical regulations than existing buildings, and will provide a better environment for staff and patients. The scores under this sub-criterion are essentially the opposite of those for carbon footprint
- Noise, dust, traffic congestion, etc. impacts reflect the scale and scope of the build required under each option. Again, Option 6 scores lowest in terms of this sub-criterion while Option 1 scores highest

Weighted scores

Applying the criterion weights to the unweighted scores generates the MCA weighted scores for the options. The weighted scores and resultant ranking of the options are presented in Table B1 at the end of this Appendix.

Table B1: MCA Criteria/objectives and importance

	Criteria & sub-criteria	Importance and rationale for inclusion
1.	**Strategic Fit**	Strategic fit relates to the degree to which the option is in line with national and regional healthcare policy (see Chapter 2).
1.1	National healthcare policy	The facilities to be delivered under the proposed project are necessary to enable UHG to fulfil its role as the Model 4 hospital in the Saolta Group, under Sláintecare, the National Cancer Strategy, the National Trauma Strategy, and other elements of healthcare policy.
1.2	Regional (Saolta Hospital Group) healthcare policy	
1.3	National & regional development policy	Galway's role as a major urban area under the National Development Plan and Ireland 2040 requires it to have the full range of public infrastructure, including high quality healthcare facilities.
2.	**Compliance with project objectives, i.e. healthcare benefits**	Project objectives relate to the delivery of healthcare benefits, in terms of clinical and operational effectiveness and efficiencies, and compliance with standards. Specifically, there are well-identified ED, Women's & Children's infrastructure deficits on the UHG campus, against which it will be important to test the various options.
2.1	**ED**	
2.1.1	Clinical and operational effectiveness and efficiencies	► The proposed new facilities will meet all clinical quality, performance and risk requirements, as well as enabling better integration with other facilities on the campus ► Under the proposed project hospital staff will be able to stream patients into a different areas/services and improve the Patient Experience Time (PET) ► It will also enable the meeting of Sláintecare's and Acute Floor Model objectives, in terms of providing ambulatory services and flow through the Acute Medical Unit and Acute Surgical Assessment Unit
2.1.2	Compliance with standards	► Current facilities are inadequate and fail to meet a range of key performance criteria, including patient waiting time, risks, overcrowding, and infection control/SARI and audiovisual separation of Paediatric patients at triage. ► ED waiting times currently do not meet national targets. Long ED waiting times have been shown to lead to longer inpatient length of stay, resulting in poorer clinical outcomes and higher costs elsewhere in the hospital system ► The current facilities have inadequacies in providing privacy and dignity for patients attending ED, associated with overcrowding and consequently waiting on trolleys in corridors ► Current ED infrastructure is also inappropriate for women in early stage pregnancy loss. There is an inability to provide an appropriate private space to manage their clinical needs and recognise the bereavement these women are experiencing ► The UHG ED has been identified as a major risk area in the Saolta Group ► A temporary ED, currently under construction, into which the current ED will decant to accommodate the proposed new ED and Women's & Children's project, is likewise inadequate in size and will not meet key criteria, due to site size limitations ► Without investment in additional ED capacity there is a risk that UHG will not be able to fulfil its role as the key emergency hospital in the Saolta Group, given the expected increase in attendee numbers in the coming years

	Criteria & sub-criteria	Importance and rationale for inclusion
2.2	**Women's & Children's (Maternity & Paediatric)**	
2.2.1	Clinical and operational effectiveness and efficiencies	► Current facilities are past end of design life, many having been built in the 1950s, and are remote from other key facilities on the campus ► The existing Women's & Children's buildings on the UHG campus date from the 1950s, have no direct access to ED, are dispersed across the site and are isolated from vital healthcare services such as critical care, diagnostics, and theatres ► The antenatal and Gynaecology areas, which were constructed in the 1950s, are outdated, as are a delivery suite and clinical space which were added in the 1980s ► Under the proposed project hospital staff will be able to stream patients into different areas/services
2.2.2	Compliance with standards	► Currently there is only one theatre in the building which services both emergency and elective Maternity Gynaecology patients. Having access to only one theatre poses a significant risk for the safety of women and babies and places limitations on the volume of scheduled Gynaecology care that can be performed leading to extended waiting lists. The proposed three theatres will address the risks of access for mothers and babies and improve ambulatory and inpatient throughput resulting in a more efficient and effective service for Maternity and Gynaecological patients ► Spatial constraints have resulted in overcrowding in patient areas for women and babies, limited numbers of bathroom and toilet facilities available for women, a rise in the number of HCAI outbreaks and inability to progress minor building improvements ► The cot capacity in the Level 2 neonatal unit needs to be enlarged in order to ensure that capacity to meets the Level 2 neonatal requirements within the group. The five Maternity units within the Group handle approximately 10,000 deliveries per annum. Currently due to cot capacity UHG is unable to accept the neonate resulting in transfers to Dublin for clinical care that should and could be available closer to home ► Patient experience and patient risk are at unacceptable levels, and have resulted in high profile cases of adverse clinical outcomes in recent years ► Adequate accommodation for adolescents (up to age 16) is not available currently and these patients are accommodated on adult wards ► A proportion of complex Paediatric cases currently must be transferred to Dublin hospitals, increasing cost, risk and patient and family disruption ► Lack of dedicated theatre space increases the risk of adverse clinical outcomes for patients
2.3	**Wider healthcare benefits**	
2.3.1	Attraction/retention of staff ED	► Hospital management confirms that this is an issue in UHG, in Women's & Children's as well as in ED. Staffing problems are known to arise in overcrowded EDs internationally[85]
2.3.2	Attraction/retention of staff W&C	

[85] Ferero, R. & Hillman, K., 2008, *Access Block and Overcrowding: A Literature Review*, Simpson Centre for Health Services Research, South Western Sydney Clinical School, University of New South Wales. https://www.acem.org.au/getattachment/a9b0069c-d455-4f49-9eec-fe7775e59d0b/Access-Block-2008-literature-review.aspx

	Criteria & sub-criteria	Importance and rationale for inclusion
		► The quality of the infrastructure, and its impact on clinical staff being able to provide an appropriate level and standard of care is recognised as a significant issue for UHG, and the region with attracting and retaining staff in both ED and Women's & Children's services ► Management expects that it will be easier to recruit and retain quality staff with a greater consistency of skill mix in an improved and more integrated working environment, as will be delivered under the proposed projects, and to varying degrees with the other options
2.3.3	Other – wider healthcare benefits across Saolta Group	► Benefits across the UHG campus facilitated by the proposed project, including through elimination of bottlenecks in ED ► Benefits across the Saolta Group, as increased capacity at UHG frees up resources at other facilities
	3. Value for Money	► This is a complex and expensive project, and will represent a significant draw on Exchequer funds both in the construction and operational phases (over the long term, operating costs will exceed capital investment cost by a significant margin). It is necessary to ensure that the projects represents good value for money for the Exchequer and for society. As the project will be Exchequer funded, affordability is to be tested in light of the available Medium Term Capital Envelopes and existing commitments.
3.1	Capital costs	► The capital cost for the proposed project is estimated at in excess of €400 million Capital costs for the other options can be expected to relate pro rata to the extent and timing of delivery of new facilities
3.2	Operating costs	► Operating costs for the proposed project are expected to increase from current levels by approximately €40 million per annum (in 2021 prices), in order to operate the expanded facilities on an ongoing basis ► Operating costs for the other options could be expected to relate pro rata to the extent and timing of facilities that become operational
3.3	Wider cost savings	Other savings and income may arise from: ► campus-wide efficiencies generated by the project ► avoided patient transfers to Dublin hospitals ► increased income from private patients, as a result of more single room accommodation
	4. Feasibility	
4.1	Affordability	The proposed project is large and expensive. Phased or less ambitious options can be expected to be more affordable and have a lower scope.
4.2	Scope	
4.3	Deliverability, including planning risk	Deliverability relates to the potential barriers there may be to delivery of the project, including planning risk (i.e. the risk that the project will not receive planning permission, or that the permission will impose restrictions on the project that may inhibit the delivery of the project 'vision'.

	Criteria & sub-criteria	Importance and rationale for inclusion
4.4	Project complexity	All of the options, with the exception of Option 1, are complex, given their scale and scope. UHG is an intensely used campus, so options to build on the campus, or on more intensely used parts of the campus, can be expected to be more complex.
4.5	Timeline/construction delivery	The proposed project is expected to commence construction in 2024 and become operational at the start of 2028. Do Minimum would be expected to take the least time to deliver, while phased options would entail a longer timeline. Timeline is important as project that take less time will deliver patient benefits more quickly and may be less risky.
	5. Social criteria	
5.1	Impact on accessibility	Timely access to quality healthcare services leading to better health outcomes is a key factor in promoting equality in society. Provision of the services proposed will have a significant beneficial impact, in terms of reducing waiting times and improving clinical outcomes. Equality is a recurring theme in the Sláintecare report[86], as well as being reflected in international studies[87].
5.2	Impact on equality	
	6. Environmental criteria	
6.1	Carbon footprint & energy	Energy intensity/usage and the related carbon footprint of the project, both in construction and in subsequent operations, are important criteria given the Government's climate change commitments. Although the newbuild options will have more scope to incorporate newer more energy-efficient technologies including the use of renewables (and will be built to NZEB standards), larger more sophisticated facilities with a higher level of equipping and activity are likely to use more energy, all else equal.
6.2	Built environment & regulation	This primarily relates to providing a higher quality-built environment and meeting various regulations including with respect to patient safety and dignity, fire, natural light, infection control, etc. Newbuild options will meet regulations and deliver a superior built environment.
6.3	Other - noise, dust, traffic congestion etc.	These are relevant, particularly during the construction phase. The UHG campus is intensively used, and thus these impacts will need to be managed. The MPUH option may generate fewer localised environmental impacts (congestion, noise, etc.) as the site is less intensely used at the moment, and traffic congestion once operational may also be lower.

[86] https://assets.gov.ie/22609/e68786c13e1b4d7daca89b495c506bb8.pdf
[87] See for instance https://www.euro.centre.org/downloads/detail/882/1

Table B2: MCA Unweighted scores out of 100

			Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
		Criterion	Do Minimum	Do Project	Do Phased Project	Do Project elsewhere - on campus	Do Project elsewhere - MPUH	Do Alternative – W&C only
		1. Strategic Fit						
1.1		National healthcare policy	10	100	85	70	50	40
1.2		Regional (Saolta Hospital Group) healthcare policy	10	100	85	70	50	40
1.3		National & regional development policy	10	100	80	75	50	40
		2. Compliance with project objectives, i.e. healthcare benefits						
2.1		**ED**						
2.1.1		Clinical and operational effectiveness and efficiencies	10	100	100	60	30	10
2.1.2		Compliance with standards	10	100	100	80	60	10
2.2		**Women's & children (Maternity & Paediatric)**						
2.2.1		Clinical and operational effectiveness and efficiencies	10	85	70	60	30	30
2.2.2		Compliance with standards	10	85	70	80	60	60
2.3		Wider healthcare benefits						
2.3.1		Attraction/retention of staff ED	10	95	90	70	40	30
2.3.2		Attraction/retention of staff W&C	10	90	70	60	20	30
2.3.3		Other - wider healthcare benefits across Saolta Group	5	90	70	50	35	30
		3. Value for Money						
3.1		Capital costs	80	35	30	25	30	45
3.2		Operating costs	60	40	45	35	35	50
3.3		Wider cost savings	20	100	70	60	65	65
		4. Feasibility						
4.1		Affordability	80	50	40	30	30	60
4.2		Scope	100	50	40	30	30	60
4.3		Deliverability, including planning risk	100	80	60	25	60	50
4.4		Project complexity	80	50	40	30	35	60

			Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
		Criterion	Do Minimum	Do Project	Do Phased Project	Do Project elsewhere - on campus	Do Project elsewhere - MPUH	Do Alternative – W&C only
4.5		Timeline/construction delivery	100	50	40	30	40	60
		5. Social criteria						
5.1		Impact on accessibility	10	100	80	70	70	60
5.2		Impact on equality	10	100	80	70	70	60
		6. Environmental criteria						
6.1		Carbon footprint & energy	70	30	35	25	20	40
6.2		Built environment & regulation	10	100	80	80	70	70
6.3		Other - noise, dust, traffic congestion etc.	80	40	35	30	35	50

Source: EY, in consultation with GUH & HSE Estates

Table B3: MCA Weighted scores out of 100

			Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
	Criterion	**weights**	**Do Minimum**	**Do Project**	**Do Phased Project**	**Do Project elsewhere - on campus**	**Do Project elsewhere - MPUH**	**Do Alternative – W&C only**
	1. Strategic Fit							
1.1	National healthcare policy	4%	0.4	4.0	3.4	2.8	2.0	1.6
1.2	Regional (Saolta Hospital Group) healthcare policy	4%	0.4	4.0	3.4	2.8	2.0	1.6
1.3	National & regional development policy	2%	0.2	2.0	1.6	1.5	1.0	0.8
	Subtotal	**10%**	**1.0**	**10.0**	**8.4**	**7.1**	**5.0**	**4.0**
	2. Compliance with project objectives, i.e. healthcare benefits							
2.1	**ED**							
2.1.1	Clinical and operational effectiveness and efficiencies	17%	1.7	17.2	17.2	10.3	5.2	1.7
2.1.2	Compliance with standards	9%	0.9	8.8	8.8	7.0	5.3	0.9
2.2	**Women's & children (Maternity & Paediatric)**							
2.2.1	Clinical and operational effectiveness and efficiencies	17%	1.7	14.6	12.0	10.3	5.2	5.2
2.2.2	Compliance with standards	9%	0.9	7.5	6.2	7.0	5.3	5.3
2.3	Wider healthcare benefits							
2.3.1	Attraction/retention of staff ED	2%	0.2	1.9	1.8	1.4	0.8	0.6
2.3.2	Attraction/retention of staff W&C	2%	0.2	1.8	1.4	1.2	0.4	0.6
2.3.3	Other - wider healthcare benefits across Saolta Group	4%	0.2	3.6	2.8	2.0	1.4	1.2
	Subtotal	**60%**	**5.8**	**55.4**	**50.2**	**39.3**	**23.5**	**15.4**
	3. Value for Money							
3.1	Capital costs	6%	4.8	2.1	1.8	1.5	1.8	2.7
3.2	Operating costs	6%	3.6	2.4	2.7	2.1	2.1	3
3.3	Wider cost savings	3%	0.6	3	2.1	1.8	1.95	1.95
	Subtotal	**15%**	**9.0**	**7.5**	**6.6**	**5.4**	**5.9**	**7.7**

			Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
	Criterion	**weights**	**Do Minimum**	**Do Project**	**Do Phased Project**	**Do Project elsewhere - on campus**	**Do Project elsewhere - MPUH**	**Do Alternative – W&C only**
	4. Feasibility							
4.1	Affordability	2%	1.6	1.0	0.8	0.6	0.6	1.2
4.2	Scope	1%	1.0	0.5	0.4	0.3	0.3	0.6
4.3	Deliverability, including planning risk	2%	2.0	1.6	1.2	0.5	1.2	1.0
4.4	Project complexity	1%	0.8	0.5	0.4	0.3	0.4	0.6
4.5	Timeline/construction delivery	1%	1.0	0.5	0.4	0.3	0.4	0.6
	Subtotal	**7%**	**6.4**	**4.1**	**3.2**	**2.0**	**2.9**	**4.0**
	5. Social criteria							
5.1	Impact on accessibility	2%	0.2	2.0	1.6	1.4	1.4	1.2
5.2	Impact on equality	2%	0.2	2.0	1.6	1.4	1.4	1.2
	Subtotal	**4%**	**0.4**	**4.0**	**3.2**	**2.8**	**2.8**	**2.4**
	6. Environmental criteria							
6.1	Carbon footprint & energy	2%	1.4	0.6	0.7	0.5	0.4	0.8
6.2	Built environment & regulation	1%	0.1	1.0	0.8	0.8	0.7	0.7
6.3	Other - noise, dust, traffic congestion etc.	1%	0.8	0.4	0.4	0.3	0.4	0.5
	Subtotal	**4%**	**2.3**	**2.0**	**1.9**	**1.6**	**1.5**	**2.0**
	Grand total	**100%**	**24.9**	**83.0**	**73.4**	**58.2**	**41.4**	**35.5**

Source: EY, in consultation with GUH & HSE Estates

Appendix C: Risk Registers

Below is an abstract from the project Design Risk Register, followed by abstracts from ED and W&C Clinical Risk Registers.

Table C1: Design Risk Register abstract, 16/08/2021

Risk Identification			Risk Management	
No	**Risk Description**	**Consequence**	**Management Actions Taken**	**Management Actions Planned**
1	Statutory Approvals: Planning permission			
1.1	Risk of rejection of ED and Women's & Children's Block as over-development of the site.	Delay, redesign, re-application		
1.2	Risk of modification required to the ED scheme as being too close to or over-bearing in respect of the listed Nurse's Home	Delay, redesign, re-application	Building design stepped back to minimise visual effect, scale and over-shadowing of Nurse's Home	
1.3	Risk that the Planning Authority rejects the transportation strategy	Delay, redesign, re-application		Arrange consultation with Local Authority Planning and Roads Departments.
1.4	Onerous Planning Conditions	Cost, redesign		
1.5	Risks of third party objections to enabling works or main contract.	Delay, redesign, re-application		
	Risks associated with all enabling works requiring planning permission	Delay, redesign, re-application		Make applications as early as possible to minimise delay. Arrange pre-planning consultations.
2	Statutory Approvals: Fire Safety Certificate			
2.1	Fire officer conditioning sprinklers, other more onerous requirements leading to additional costs	Delay, redesign, additional cost		Approach Fire Officer at an early stage.
2.2	Future risk to change in regulations	Delay, redesign, additional cost		
2.3	Fire Officer does not accept enabling works strategies, such as OPD link.	Delay, redesign.		Approach Fire Officer at an early stage.
2.4	Future risk to changes in Environmental and Sustainability requirements	Delay, redesign, additional cost		

Risk Identification			Risk Management	
No	**Risk Description**	**Consequence**	**Management Actions Taken**	**Management Actions Planned**
3	Enabling Works: UHG			
3.1	Splitting enabling works that are interlinked into separate packages			
3.2	Risk that enabling works contracts clash with NPRO or Blood and Tissue Laboratory contracts.	Delay and cost.		Obtain programmes for other UHG contracts.
3.3	Construction programme including proposed enabling works: Phasing of the enabling works and agreement with UHG in terms of areas to be vacated in order for works to proceed as per the current proposed programme. Risk that UHG will not agree to phasing and implementation proposals.			
3.4	Lack of flexibility in enabling works programme	Delay to master programme if one contract is delayed		Aim to minimise interdependencies.
3.5	Risk of knock-on works being required in peripheral buildings such as Nurse's Home, OPD, Boiler House, Block 2C, as a consequence of replacing primary services to these buildings	Delay, cost.		
3.6	Electrical MV ring main: scope, design, builders work and programme to be developed to further develop and refine costs. Risk that this work will expand.	Delay, cost, disruption.		
3.7	Complexity of various enabling works commencing at the same time and proximity to existing Hospital	Delay, cost, disruption.		
3.8	Risk UHG accommodation to be decanted is delayed	Delay, cost.		
3.9	Risk of staff dissatisfaction with reduction in car parking spaces.			
3.10	Campus traffic management when numerous contracts on site. Risk of gridlock, obstruction of ambulance and fire brigade access.	Disruption, accidents.		
3.11	Risk of a mismatch between GCC and HSE/UHG requirements on bus route/road realignment, such as GCC/NTA do not accept the ED Design Team's scheme.	Delay and re-design		HSE/UHG, and subsequently Design Team, to engage with GCC. Formal agreement to Design Team drawing to be sought.
3.12	Replacement car parking not available for periods			

Risk Identification			Risk Management	
No	**Risk Description**	**Consequence**	**Management Actions Taken**	**Management Actions Planned**
3.13	Risk that staff do not adhere to Mobility Management Plan commitments.	Delay		Record actions taken to date. Identify further actions and communications required and develop with UHG MMP Team.
3.14	Risks to CT scan rooms and functionality, as they are too close to the building site. Scheme required to provide alternative or to relocate.	Disruption to clinical service, cost.		
4	Health and Safety			
4.1	Ventilation protection to existing buildings is not completed in advance of construction works	Delay and cost.		
4.2	Risk that further Aspergillus protection upgrades may be required, for areas such as Haematology/Oncology.	Cost		
4.3	Risks arising to pedestrians, public and staff, from temporary routes and measures replacing permanent routes during the enabling works.	Accidents		
4.4	Covid-19 restrictions and compliance requirements	Delay and cost.		
5	Developed Design Stage			
5.1	Making sure that the necessary surveys are available – or undertaken from the outset – including topographical, soil investigation / ground contamination, UG & OG services, archaeology, radon, asbestos, ecology, flora & fauna, trees & vegetation, acoustics, screening for appropriate assessment etc.			
5.2	Risk that scope additions adversely affect the project budget and programme	Delay and cost.		
5.3	Successful delivery of a coordinated BIM Model at an early stage	Delay.		
5.4	Careful attention to the below-ground geotechnical make-up of the underlying rock. The area in the vicinity of the site has been found in the past to contain substantial karstic voids.	Delay and cost.		

Risk Identification			Risk Management	
No	**Risk Description**	**Consequence**	**Management Actions Taken**	**Management Actions Planned**
5.5	Risk of delay arising from new requirement for financial assessments at CWMF stages, such as new Cost Benefit analyses.	Delay.		
6	Procurement			
6.1	Procurement - Importance of competent appointments/ strong site organisation/ financially sound. Risk that a suitable contractor is not appointed.			
6.2	Construction methodology / buildability market overheated and sub-contractors picking and choosing their work. Design should accommodate traditional construction where possible.			
6.3	Contractors challenge the outcome of the prequalification or tender evaluation complete	Delay.		
6.4	Contractual implications of status of BIM model.			Design Team are to meet to review recent experience and make a proposal to HSE Estates.
6.5	Risk of delay arising from additional financial assessments of Contractors.	Delay.		
7	Construction Stage			
7.1	Unforeseen underground services	Delay and cost		
7.2	Unforeseen ground conditions/ contaminated soil.	Risk of delay and consequent cost.		Collate site investigations and data arising from the construction of the underground duct and other enabling projects.
7.3	Noise, vibration, disruption to existing hospital.	Risk of delay and consequent cost.		Agree and set specific noise and vibration limits. Include in contract documents, including monitoring.
7.4	Risks associated with construction traffic management.			
7.5	Risks arising from interface with existing buildings			
7.6	An area required for the works is not released to the Contractor in time.	Delay and cost		
7.7	Staff refuse to vacate an area required for the works.	Delay and cost	Decision made in Feb 2019 to proceed with phasing and	

Risk Identification			Risk Management	
No	**Risk Description**	**Consequence**	**Management Actions Taken**	**Management Actions Planned**
			buildability option that minimises IR risks.	
7.8	Staff require stoppages for clinical reasons.	Delay and cost		Make provision/allowance in contract documents for managing essential stoppages.
7.9	Approvals for ER Determinations or Change Orders are delayed.	Contractual claims		
7.10	Permits to Work are delayed or not issued, in the event that UHG Buildings and Maintenance do not have the resources to process them in time.	Delay and cost		Consider appointing additional staff to manage the process. Make permitting requirements explicit in tender documents.
7.11	Incompleteness of tender documents, which leads to claims	Claims for additional cost		
7.12	Risks associated with M&E services tie-ins to hospital systems.	Adverse effects on existing Hospital, delay, cost		Consider appointing M&E Clerks of Work.
7.13	Covid-19 compliance	Risk of delay and consequent cost.		
7.14	Market disruption associated with Brexit and covid-19 impacting material supply	Risk of delay and consequent cost.		
7.15	Labour shortages in key trades	Risk of delay and consequent cost.		

Table C2: ED Clinical Risk Register abstract (excluding Covid-related)

Unique ID NO	Risk Owner	Risk Description	Actual/ Potential RISK	Existing Controls	Analysis			Additional Control Measures Required
					Likely hood	Impact	Risk rating	
	1	Staffing deficits (all Grades)leading to poor pt. experience and outcomes . Non replacement of staff on leave (Mat leave ,long term sick leave).Nurse pt. ratio deficit due to staff shortages .		Prioritisation of pts as per pt. acuity. Staff rostering to cover peak attendance times, continuous monitoring of staff rosters continuous recruitment	5	4	20	Implement safe staffing and skill mix. Vacant post submitted to Employment control committee for approval. Continuous recruitment
	2	Overcrowding in ED incorporating stop, reception ,triage, RAN .Bed availability for admitted pts .Pts Nursed in inappropriate environment on trollies , Risks of falls delirium and confusion leading to increased LOS .		Prioritise care based on pts acuity. Stop Nurse streaming all pts presenting to ED to appropriate stream. Manchester Triage system used to triage all pts presenting .Twice Daily Safety flow Huddle take place where discharges and potential discharges are identified and beds allocated .Liaise with Pt flow co-ordinators.	5	5	25	Full capacity protocol activated when hospital in status black whereby trollies are moved to designated wards .Awaiting acute floor improvement plan .Regular Checks of all fire exits/evacuation routes by CNM /Shift leader .Await TED until ED W&C Build
	3	Lack of Isolation facilities Positive/Suspected Covid 19 pts presenting to ED .Transmission of infection to staff and pts .Inappropriate clinical environment for potential or known infective pts		Segregation of positive /suspected Covid -19(red stream) and non-Covid -19 pts (Green Stream) into two streams .Allocation of Stop Nurse at ED entrance ,Completion of Covid-19 questionnaire .FFP2 masks provided for pts at reception. Encourage pts to wear masks and maintain social distancing .Use of Appropriate PPE adhering to National updated guidelines. Covid -19 testing of all pts in Red stream and on admission on green stream. FIt Testing completed for staff and ongoing for new HCW 's .IPC alerts at triage on IPMS to alert triage staff of pre-existing infections .Isolation rooms utilised based on clinical need	5	5	25	Increase number of isolation rooms and toilet facilities Continuous Education and training for Staff .continued monitoring and support

Unique ID NO	Risk Owner	Risk Description	Actual/ Potential RISK	Existing Controls	Analysis			Additional Control Measures Required
					Likely hood	Impact	Risk rating	
	4	Inadequate Interview rooms /psych rooms to meet service need. Lack of trained psychiatric Nurses to ensure safety of pts with mental health issues and skill set . Due to large volume high risk of pt. absconsion .Proximity of interview room to clinical base .Reduced security personnel .Security staff trained with management of psychiatric pts .AMMHU detached from acute hospital block		Security available in ED and for transferring pts to AAMHU .Access to Psychiatric Liaison consultant, Psychiatric ANP and self-harm clinical Nurse specialist and on call Psychiatrist oohrs .CCTV available .Panic alarms available throughout ED	5	3	20	Additional Security presence on floor 24/7.. Admission service 24/7 to CAMHS . Recruitment of appropriate trained staff .Assessment of pts in AMMHU where appropriate.
	3	16-18yr old Nursed in same area as adults .Risk of exposure to violence, aggression and inappropriate behaviour .Risk of non-compliance with children first policy .		Patients under 16yrs are cared for in Paeds ED .Mandatory training on children first policy .Parent/guardian advised to accompany pts .	5	4	20	designated adolescent area /single rooms required
	1	Inadequate IT system .Interface not adequate between ED tracker and IPMS .Different systems in place. No IT System administrator .Manual auditing		ED Tracker for location and tracking pts through ED .IPMS for registering pts, triaging admitting /discharging pts, Evolve for accessing lab results , medical notes, radiology results and correspondence .	5	3	15	Integrated IT system for ED .Recruitment of IT administrator .Business case resubmitted. Regular training and troubleshooting assistance easily available at point of care
	2	Verbal and physical violence to staff from pts and members of the public. Intoxicated pts risk to themselves and others .E.g. Falls , absconding , aggression violence and self-harm		Clear communication with pts/relatives regarding plan of care .Signage regarding zero tolerance of violence and aggression in ED . Swipe access on doors into ED .Security office located at ED reception .Garda Liaison Officer appointed .Visiting restrictions as per GUH policy .Hospital Policy on Violence .MAPA Training .Employee assist available and OH for HCW . Appropriate & rapid assessment as per MTS . Education & signs of acute alcohol withdrawal and appropriate treatment of same .,Close supervision of pts	4	3	12	Upgrade of panic alarms.24/7 security in ED .Restricted visiting hours and adherence to same .MAPA training to be more frequent .Separate treatment area with audio-visual equipment .ED Alcohol liaison CNM 2 to be appointed .oohrs social service .

Unique ID NO	Risk Owner	Risk Description	Actual/ Potential RISK	Existing Controls	Analysis			Additional Control Measures Required
					Likely hood	Impact	Risk rating	
	4	Trollies/Equipment blocking fire exits .Overcrowding , high ED presentations		Fire safety measures adhered to at all times , all egress and exits routes kept clear. Fire Risk Register checklist completed daily .Log kept of issues that imped exit/evacuation routes with appropriate actions taken . Reporting of fire breaches twice daily at SFH .Minimising amount of equipment on corridor	5	1	5	Ongoing fire safety training for all staff and re-establishing live fire drill when safe to carry out

Table C3: W&C UHG Directorate Risk Register : Updated November 2021.

Unique ID NO	Risk Description	Actual/ Potential RISK	Existing Controls	Analysis			Additional Control Measures Required
				likelihood	Impact	Risk rating	
15	**Gynaecology theatre -** currently we have only 1 operating theatre for elective obstetric and Gynaecology, this has to accommodate emergency Obstetrics and Gynaecology also. This means that the ability to perform Gynaecology procedures is less than half the working week resulting in long delays for treatment in particular delays in surgery for Gynaecology oncology women or they are transferred to Dublin for surgery		Monthly up to date waiting lists circulated to all consultants for review. Lists constantly reviewed. NTPF are supporting with W/L initiatives	5	5	25	Intermin plan underway to develop a second theatre with HSE estates and NWIHP. Business case submitted and architects survey done for an additional theatre. Not progressed to date due to ? Funding. Will be addressed in the new build.
16	**Lower Segment Caesarean Section (LSCS rates)** rising (emergency and elective) resulting in increased demands on the service with the women having longer acuity having increased risk of complications	**A**	Review rates monthly - discussed at monthly meetings , schedule to distribute elective work across 5 days in order to distribute workload, this in not working as there is poor compliance.	5	5	25	Increase compliance with the SOP for elective sections list . Advanced Midwife Practitioner post in place to promote Vaginal Birth after Caesarean section(VBAC) Four clinics held per month, two in Athenry and two on site in UCHG. CAESARS project also being implemented
19	**Age Capacity in Paediatric unit -** Paeds have a capacity of 32 beds. Can only take medical patient up to age 14 years, unless chronic illness e.g. CF, Diabetes and Oncology etc. Can only take surgical up to age 12years. Need adolescent ward.	**A**	Cancellation of elective procedures when required this will result in delay of treatment for children. Escalation to bed management.	5	5	25	Discussions have commenced between the Paediatric clinical Director, the Director of MCAN and the UHG Chief clinical director to designate specific inpatient beds in the hospital for adolescents. Reduced bed capacity, due to Covid Beds.

Unique ID NO	Risk Description	Actual/ Potential RISK	Existing Controls	Analysis			Additional Control Measures Required
				likelihood	Impact	Risk rating	
5c	**Covid hospital Wide:** Significant disruption to the capacity of UHG to deliver safe and efficient care to patients due to the impact of Covid 19 It is noted that the pandemic has significantly impacted staff in terms of Covid related illness and this has led to a higher than usual staff absenteeism rate.	**À**	Following National Guidance and advice. Risk Assessment algorithm in place to guide screening of potential cases. Accelerated recruitment for vacant clinical posts. Redesignation of clinical areas to cater for Covid 19 patients. Restrictions on access to hospital and visiting patients on wards now eased as of Oct 2021. Elective services adapted to maximise infection prevention and control measures.	5	5	25	Hand hygiene/physical distancing and wearing of PPE emphasised repeatedly Hospital wide. With additional caution advised at tea breaks. Time sensitive and emergency procedures sent to private hospitals to alleviate capacity issues for Covid patients. Designated covid wards in GUH
23	**No on site clerical support to upload the admission of patients to the unit out of hours e.g.2pm-on Friday until Monday am Patient census inaccurate.**	**A**	Central admissions open until 8pm and ED after 8pm. Additional stress has been incurred due to the introduction of iPMS	5	5	25	Dedicated clerical support for weekend for Maternity admission unit to capture patients demographics and activity in real time required. Business case re-submitted, outcome awaited from senior management (When?) Admissions need to re submit another business case for out of hours clerical cover!
24	**Lack of Tertiary Neonatal Unit**	**A**	All infants less than 27/40 weeks are referred to a Tertiary centre in Dublin	5	5	25	Discussion held regarding interim expansions of current neonatal unit, until such time as there is a new build.
28	**Manual spring loaded double doors difficult to manage** for those in wheelchair or with large buggy. Risk of trapping fingers, high risk of special/developmental needs patients absconding. Lack of cover from rain causes risk of slips and falls when buggies and covers are dripping wet, staff frequently have to leave their area to assist and spend time drying the floor at the entry to OPD	**P**	Floor mat at door and staff constantly advise parents of the risk	5	5	25	New automated door required with internal and external controls to maintain safety, give ease of access to wheelchair and buggy users and to help prevent flight risk children from absconding. Intercom access to clerical staff and a sheltered area at the door to allow parents to remove buggy and wheelchair covers before entering the OPD area
34	Lack of **clinical rooms/consultation rooms in OPD** for Additional new Medical Staff/ CNS's/AHP's to run their clinics In Paediatric Dept	A	Hot desking used as much as possible	5	5	25	Significant space needed for Clinical/Consultation Rooms for new Staff and services coming on stream
1	**Staff Shortage (Midwives)** As a result of Maternity leave, extended sick leave, covid positive leave, The WTE compliment in the Maternity and Neonatal Unit is not maintained exposing both staff and patients to adverse outcomes. Potential for un intended harm to both patients and staff, risk of errors, due to staff having to cover in areas not normally covered, causing additional stress for staff	**A**	Work Force Planning on unit. Continual review and changes made to address deficits where possible. All incidences of insufficient staff numbers being available are to be recorded as part of the Clinical Risk reporting system as near misses. GM and HR manager acutely aware of the situation	5	4	20	All vacant posts submitted to the Employment Control Committee for approval need to be filled urgently. Current WTE deficit (October 2021=38 WTE)

Unique ID NO	Risk Description	Actual/ Potential RISK	Existing Controls	Analysis			Additional Control Measures Required
				likelihood	Impact	Risk rating	
2	**Neonatal Resuscitation Risk present following all deliveries to the neonate making the transition to ex utero life.**		Training in Neonatal Resus is mandatory for all midwives and Neonatal Medical staff. American Academy of Paediatrics Neonatal Resuscitation programme held in house on a monthly basis and is available to all midwifery and Medical staff. Monthly perinatal review meetings are held and adverse outcomes discussed.	5	4	20	All existing controls in place. Ongoing audit of compliance required. Online NRP training purchased.
3	**Training and competency of Agency Staff** Difficulty in verification of the training and competency of Agency Medical Staff who are often employed at short notice.	**A**	Clinical Director linked with Medical Manpower Manager. This issue also discussed at the Maternity Strategy Safety Information Group (MSSIG) meeting. The agencies should keep a record of training and verify all the records of their staff.	5	4	20	A National Data base to be developed regarding medical training/qualifications. Medical Manpower Manager to advise when this is in place. Agenda item on the MSSG. Following Midwives training PPARS is updated by Practice Development. NCHD's should update their training records on the NER database.
4	**Interpretation of Electronic Foetal Monitoring-**Incorrect interpretation of CTG's has the potential to have a negative impact on perinatal morbidity and mortality.	**P**	CTG training mandatory for all staff which is supported by the directorate and Practice Development Coordinator. K2 online training also available	4	5	20	Upgrade of K2 to cover critical Maternity Care approved and on site. Uptake of training by Medical staff to be improved. Training currently 2 yearly.
5a	**Infection Transmission** (Risk to patients) Biological agents	**P**	Infection control training available for all new staff . Hand Hygiene training mandatory for all staff. Hygiene audits conducted on a regular basis. Cleaning Audits conducted regularly. Strict Uniform policy in place. Support and advice available from the Infection control team.	5	4	20	Uptake of training is robustly promoted. Currently no isolation facilities in the antenatal and Gynaecology wards. Will be addressed in proposed new build .
5b	**Isolation facilities -** lack of isolation rooms in the antenatal and Gynaecology ward which means we are unable to comply with infection control standards for women , increasing likelihood of spread of infection.		Patients have to use commodes , use of signage, PPE and hand hygiene, additional cleaning as required; input from microbiologist and CNS infection control.	5	4	20	Currently no isolation facilities in the antenatal and Gynaecology wards despite several submissions to the Services Department. Continue to Escalate to services manager and Estates team to fund an isolation room on each ward.
7	**Labour Ward Theatre-**Need for a theatre which meets specifications in the labour ward for emergency obstetric as the current facility does not meet the required operating theatre standard.		Existing Controls	5	4	20	New build awaited

Unique ID NO	Risk Description	Actual/ Potential RISK	Existing Controls	Analysis			Additional Control Measures Required
				likelihood	Impact	Risk rating	
8	**Sexual Assault Treatment Unit (SATU) CASATS** run on a site remote from UHG and Merlin Park.		The service is currently run from the Willow Medical Centre in Doughiska.	4	5	20	Discussions at an advanced stage with Management, Estates. TUSLA, Gardai SATU staff and the Directorate team for a new designated facility using the Barnahaus model. Plans to occupy new building early Dec 2021
18	**Lack of medical secretaries for Paediatrics and Maternity service** means there is a delay in typing of dictated letters for referral, reporting and communicating following patients review or admission.	**A**	Overtime offered to secretaries to type and manage backlog. Continual engagement with the ECC and NRS for replacement staff. Dictated letters securely stored on Digisoft dictation system.	5	4	20	Review of secretarial support required to ensure safe workload to reduce risk to patients.
20	**Gynae waiting lists -** we currently have women waiting 12 months and over following referral from a GP for an appointment to see a gynaecologist.	**A**	Waiting lists reviewed frequently, priority referral identified, increase clinic where possible .	5	4	20	Need to increase capacity to see women in the OPD. Ambulatory gynae for rapid access and prevent unnecessary use of theatre time. Provision of a second theatre to be dedicated to Elective and Emergency C/Sections thus freeing up the Gynae Theatre for Gynae surgery. Intermin measures in place, ongoing issue. Second Theatre needed.
11	**Laboratory results** challenges with timely follow up on Laboratory tests to avoid error , delay, omission or injury.	**P**	Clinical guideline on follow up of results in place with clear roles and responsibilities outlined. Follow up Laboratory registers in all areas. Failure reported on Q-Pulse incident reporting system. GP's requested to put patients Board number on Laboratory requests when known.	5	4	20	Audit of policy ongoing. Laboratory registers in all areas of the dept and regular audit. Lab IT system to show results have been checked and by whom required.
27	**Only One coffee room available** for use by Nursing, Medical, Clerical and AHP's in Paeds Dept. This can only accommodate 4 members of staff at one time due to physical distancing, resulting in the risk of cross infection and delays in taking breaks	**A**	Contact tracing sign in/sign out record in use. Staff can use canteen /front foyer shop and time breaks so that physical distancing can be maintained	5	4	20	More frequent cleaning of the room is required,3 or more times per day . Identify another room that can accommodate staff with Kitchen facilities
32	The NICU has an old Globetrotter transport incubator. The ventilator has very old modes of ventilation. It can cause harm to a sick baby. The space on it is inadequate for oxygen tanks and there is not enough space for pumps. The suction and temperature are defective and inadequate	**A**	Training needs to be more regular and consistent. National Neonatal Transport Team has offered to do education. The Bioengineering Department are doing regular checks since the alarm was raised	4	5	20	A new transport incubator is urgently required, given the risk associated with these findings. It is more important now as UHG is now the regional centre. Funding is available for this. The transport incubator used by the National Transport Team is different to the one used by the Neonatal unit in UCHG , there is a need for consistency in this

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29	**Children and Adolescents with Mental Health issues** are admitted to Paeds when no other place of safety is available. This poses a risk to staff and patients due to violence and aggression from patients with altered mental health	**P**	A single room is available and security are informed for support. Occupational Health provides counselling for staff	5	4	20	A single sound proof room, with good observation area, away from the main patient area is required to maintain patient dignity and prevent exposure to other patients on the unit. This room needs to be free from all potentially dangerous objects and leads that could injure the patient/staff. Training for staff in dealing with violence is required
6	**Increasing demand on the service in the Foetal Assessment Unit**	**A**	? Sufficient Staffing in place. Early Pregnancy Assessment Unit (EPAU separately staffed	4	4	16	Two midwife Sonographers vacancies exist. One Maternity leave and one doing the course at present
12	**Medical Handover/Multidisciplinary -** Clinical handover is a critical time for the safety of the patient as such there are national guidelines in place to instruct practice.	**P**		4	4	16	Ongoing audit of compliance. Electronic handover is not available in Obs/Gynae/Neonatal Unit. Handover is part of the induction programme.. ISBAR tool in place and policy and guidelines available. Paediatric Huddle is at 8am and NCHD handover at 1700hrs. However NCHD Handover does not happen!
26	**Health and safety issues for clerical admin** staff in handling boxes of medical records on an ongoing basis with no support from a porter. Medical records not being removed to storage in a timely fashion is giving rise to cramped working conditions and packed storage shelves	**A**	Business case for a medical records porter not approved. Poor response from Medical Records Manager in getting files removed in a timely fashion despite several emails and discussion re same	4	4	16	Health and safety assessment done by Usafery in January 2020.
30	**Piped Medical Air not available for St Angela's Ward** therefore the new standardised neonatal resuscitaires which was purchased for the ward cannot be used, this may result in ineffective neonatal resuscitation therefore putting neonates at additional risk. If air cylinder is used then this poses an additional risk as there is a risk that the cylinder will run out and be empty when required	**p**	Currently equipment used provides 100% oxygen to resuscitate infants. This is sufficient for resuscitation but means the infants are getting more O2 than required thus posing an additional risk to them. Training is provided weekly on St Angela's Ward in relation to neonatal resuscitation	4	4	16	No Safe Measures Available to put in place. Cost estimated at €20,000. Applied for approval.
33	Currently space not adequate to facilitate the growing team within Perinatal Mental Health as they are sharing an office with Community Midwives	**A**	Overcrowding in the room when both members of the team are present. PNMHT are due to expand and increase to 8 members	4	4	16	Relocation of the community midwives to another office space when space becomes available
	Lack of office space for new staff appointed (Medical and Clerical admin staff in particular) in the Paediatric Unit	A	This has necessitated working from home for some clerical staff members due to lack of space	4	4	16	Additional office space needed. Services notified re same

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9	**Delay in improving Labour ward Facilities** as requested by HIQA e.g. High Dependency Unit (HDU).		Installed piped gasses and a data point in our HDU room	5	3	15	Urgent issues addressed with the Maintenance Department. Constant liaison with senior management and estates to progress issues. Some items have been addressed but progress is slow. The new build will address
10	**oxytocin risk**	**P**	Local guideline in place protocol currently being reviewed by the MDT (Midwife Doctor and Pharmacist) with best available evidence. Ongoing in house education	5	3	15	Protocol agreed .Ongoing running risk
17	**Sepsis** is a medical emergency, sepsis in pregnancy and in the postnatal period is subtle in onset, accelerates rapidly to severe sepsis and septic shock. Incidences in Obstetric patient is rising	**A**	Clinical guidelines in place on the Management of Sepsis in Obstetric Patients; Pyrexia in Labour; Post-Partum Infection. Patient information leaflets. Mandatory staff training in place PROMPT. Microbiology Consultant available 24/7. Clinical reporting of incidence of sepsis.	5	3	15	
13	**Care of the critically ill Obstetric Woman-** increased number of Obstetric women requiring level 1 and level 2 critical care	**A**	Midwives have additional training in critical care management, there has been an increasing number of Midwives trained in HDU care (completed the High Dependency Module in NUIG), Equipment and Clinical guidelines are in place and in date. Support from the Anaesthetist on a 24hr basis and Outreach ICU nurse.	3	4	12	Ongoing running risk. Audit carried out by the ICU nurses. Audit tool to be developed.
14	**Massive Obstetric Haemorrhage/pph** effects is estimated at 3.7/1000 births and is a leading cause of maternal morbidity and mortality.	**A**	A high dependency module is included in Maternity care in NUIG	3	4	12	Audits of these outcomes ongoing. If patient has a haemorrhage >2.5 litres, PARS reviewed individually and escalated to pre SIMT & SIMT
21	**Probe decontamination in the Foetal Medicine Unit** should be conducted away from the clinical area		Manual multi-wipe system for semi-critical probes is seen as the least preferred option for decontamination of semi -critical ultrasound probes. Trophon 2 is the method of choice it is used in other areas in Maternity and a consistent approach is needed across all areas	3	4	12	Submissions to Hospital Expenditure Committee in 2019 for an automated decontamination system for all probes in the Obstetric Gynaecology service as per HIQA recommendations, This follows an assessment of two systems available on the market.

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22	**Lack of security support for visiting times**	**P**	Coded doors into St Angela's but visitors still access the ward outside of visiting hours. Infant security system in place	3	4	12	Visiting hours are currently being revised in the postnatal ward. Survey re visiting hours has been carried out with service users, by the ward manager. Security due to Covid Pandemic is in place but not for visiting times.
25	**Long distance between general theatres and the Paediatric Ward**	**P**	Risk when transferring children after anaesthetic. Children are kept longer in recovery to ensure their condition is satisfactory. All children are accompanied by a trained Paediatric nurse.	3	4	12	Automatic doors are required on the long corridor for safety.

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11 April 2022

UHG ED, Paediatrics & Maternity Project Strategic Assessment Report

Dear Gráinne,

In accordance with the terms of our engagement agreement dated 25 June 2021 (the "Agreement"), we have assisted Galway University Hospitals in preparing a Strategic Assessment Report for proposed new Emergency Department, Paediatrics & Maternity facilities at the University Hospital Galway campus (the "Purpose"). Our role is to provide you with our analysis and findings. We have not performed any management functions or made any management decisions.

Limitations of Scope

We have not, except to such extent as you have requested and we have agreed to in writing, sought to verify the accuracy of the data, information and explanations provided by yourselves, and you are solely responsible for this data, information and explanations. We have therefore relied on the information provided by you to be accurate and complete in all material respects. This report has been provided to you for the above Purpose only and should not be used or relied upon for any other purpose, nor should it be disclosed to, or discussed with, any other party without our prior consent in writing.

Use & Distribution of this Report

This report has been prepared for the Purpose set out in the Agreement and may only be used and disclosed, quoted or referred to on the basis set out therein. Ernst & Young only accepts responsibility to the addressees of this letter on the basis of the Agreement and assumes no responsibility whatsoever in respect of, or arising out of, or in connection with the contents of this letter to parties other than yourselves. If other parties choose to rely in any way on the contents of this letter, they do so entirely at their own risk.

We appreciate the opportunity to have provided EY's Advisory services to Galway University Hospitals. Should you have any queries or comments regarding this report or if we may be of any further assistance, please do not hesitate to contact me on 01 221 2611.

Yours sincerely

Shane MacSweeney

Partner

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