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Health Service Options & Costing

Final Report

3 November 2017

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Executive summary

Introduction

The future demand and healthcare needs of the residents for Montserrat has been assessed to determine and recommend the preferred way forward for the future delivery of healthcare services across Montserrat.

Using available local and national evidence, the future healthcare needs of the population has been predicated on a consideration of population demographic changes and patterns of disease prevalence and a detailed analysis of current hospital service activity, using both admission and surgical data from Glendon Hospital and estimated volumes of patients treated overseas.

In parallel, this work has identified the current strengths and weaknesses of each service provided on and off island and considered where services could be potentially strengthened to improve the efficiency and effectiveness of care provided. For hospital based services, this has included an assessment of what good quality of care for patients means; balancing critical mass of patient demand with safety, resource requirements and efficiency.

Arising from this, a set of future service considerations have been made for each service area and these have in turn informed the development of potential future service options which have then been discussed and reviewed the Ministry of Health, DFID and PAHO.

The options

In terms of establishing fixed points within the healthcare system, it has been agreed that the plans and recommendations within health promotion and preventative care services, which are most likely to have the longer-term impact of the health of the population, should be assumed under each option. In addition, there can seem little clinical merit or effective use of resources in not continuing to provide on-island:

- Medical and surgical outpatients.
- Day case general surgery procedures.
- Community based antenatal and postnatal care.
- Paediatric outpatients.
- Routine medical emergency admissions.

In contrast, there can be no doubt that, for conditions such as major trauma, complex elective general surgery, complex births and complex paediatric surgery, access to care for these services should continue to be through off-island referrals.

Over and above the Status Quo, this then generates 5 potential options centred around secondary care services, each of which has consistent sub-options for community and clinical support services, summarised below.

Table 1: The Options

Option	Overview
Status Quo	Continuation of general surgery, medicine, routine paediatric surgery and most maternity deliveries on island.
Option 1	Continue to provide adult and paediatric general surgery on-island. Planned caesarean sections provided off-island.

Option	Overview
Option 2	Continue to provide adult general surgery on-island. Caesarean sections provided on-island through a visiting obstetrician/ gynaecology service. All paediatric surgery provided off island.
Option 3	Continue to provide adult general surgery on-island. All paediatric surgery and planned caesarean sections provided off-island.
Option 4	Continue to provide adult general surgery on-island. All paediatric surgery and paediatric medicine to be provided off island. (A visiting paediatrician will provide outpatients on-island). All caesarean sections to be provided off island, including any expected complex births.
Option 5	Adult and paediatric outpatient and day case surgery provided on island, supported by a visiting anaesthetist. Paediatric medicine provided on-island. Midwifery led births provided on-island. Inpatient adult general surgery and paediatric surgery provided off island. Complex adult medical admissions provided off-island. All caesarean sections to be provided off island, including any expected complex births.

To assess the relative benefits between each of these options, an options appraisal exercise was undertaken whereby each option was appraised against a set of weighted criteria. which looked to balance quality and safety of care, with accessibility, deliverability, and sustainability.

Overall, the highest scored option is Option 2. Option 2 sees a strengthening of a visiting obstetrician/gynaecologist presence on-island to support the continuation of local obstetric deliveries but the withdrawal of paediatric day case and inpatient surgery on-island. However, given that the current general surgeon is trained in paediatrics, the situation could remain as in Option 1 with the continuation of minor paediatric surgical procedures. If the situation changed or if a locum is used to provide cover, then only general surgery on adults should be performed on island. A sensitivity analysis based on a change to the weightings applied to each criteria showed that option 2 remains the preferred option in each case.

This option identifies that, to meet the future needs of the population with those services which can be provided safely on island, the future requirements is for 20 beds which includes a high dependency bed for post-operative patients and emergency transfers. This level of future beds would provide the best compromise between making best use of available resources, ensure that in the majority of admissions, patients would be admitted to their service area specific to their condition and meet the future needs of residents beyond 2025. Beds would be arranged around four bedded bays, double rooms and single occupancy rooms. Making the most appropriate use of the hospital services in the future is predicated on providing effective preventative, primary and community based services.

For community services, the sub-options considered and discussed centred around the use of the existing four clinic sites or reduce access to three clinics with the view to achieve more efficient working practices, provide medical cover at each clinic each day and remove isolated ways of working by nursing staff. Through an appraisal of the possible options for reconfiguring services, a three clinic site option, at Cudjoe Head, St John’s and one co-located at the new hospital site was identified as the preferred option. This would allow DMO cover of the casualty department when a true emergency presents.

This review has also recommended that additional mammography and possible eventually CT services on-island be explored through further discussions with private sector provider, should they wish to manage the risk of service provision. If a privately provided radiology service could not be realised through these discussions then accessing to specialist imaging services would continue to be off-island.

Supporting the provision of care on-island should be the use of remote monitoring and telemedicine providing access to radiologist, pathology and senior clinical medical staff advice overseas.

Costing the options

Whilst this non-financial benefits appraisal process has indicated preferred option for different service sectors, a financial appraisal of operating the services has also been undertaken.

Compared with the future estimated cost of delivering the current profile of acute hospital services (Status Quo option) at around XCD $16.7 million, the cost of delivering Option 2 for acute hospital services and the primary and community service changes has been estimated at XCD $17.2 million; an additional XCD $0.5 million. Despite the increased cost, combining the non-financial benefits appraisal with the financial appraisal, the overall preferred option for the new hospital facility remains Option 2.

Adding in the costs of flights for those patients requiring access to services off-island has been estimated at XCD $0.4 million and the notional costs of those services specialist tertiary services accessed in the UK and USA at XCD $1.4 million; bringing the total operational cost to XCD $19 million per annum.

Decisions about the future financing options arrangements to support the costs of the provision of this service will be subject to the next report on the health financing strategy for Montserrat.

Action Plan

Area	Action	Quarter
Prevention and health promotion	Restructuring of existing resources into a Public Health Unit	2018 Q1
	Improved coordination of funding into prevention and health promotion	2018 Q2
	Greater collaboration between the health and education sectors	2019 Q1
	• Discussions around capacity and partnerships	2018 Q2-3
	• Finalisation of plans	2018 Q4
Primary care	Job specification and recruitment to a Director of Primary Care	2017 Q4
	Consolidation of services onto fewer clinic sites	2018 Q3
	• Decision around service offer at 3 sites	2018 Q1
	• Mobilisation plan including redeployment of staff	2018 Q2
	Appointment of the DMO role	2018 Q3
	Introduction of a patient record system	2019 Q2
	• Development of a business case for the scale and scope of services	2018 Q1
	• Procurement of a contractor	2018 Q2
	• Installation	2019 Q1
Dentistry	Re-establishment of the visiting orthodontist	2018 Q1
	Development of a pool of locums	2018 Q1
	Improved procurement service	2018 Q2
	Introduction of a patient record system	2019 Q2
Environmental services	Appointment of additional staffing to vacant posts	2017 Q4-2018 Q1
Mental Health	Development of secure facilities for short term rehabilitation	2017 Q4
	Improved in-reach into schools	2018 Q2
	Development of plan and recruitment for occupational therapy	2018 Q1
	Review and implement policy for off-island referral system	2017 Q4
Secondary care	Increased visiting specialists and development of a pool of locums	2018 Q2
	• Identify individuals	2017 Q4
	• Develop contracts for employment	2018 Q1
	Establish contracts with a select number of off-island providers	2018 Q3
	• Identify and have discussions with potential providers	2018 Q1

Area	Action	Quarter
	• Development and joint signing of contracts/ MOUs	2018 Q2
	Improved access to radiology services	2018 Q4
	• Hold internal discussions about private sector provision on-island	2018 Q1
	• Discussion with potential private sector partners	2018 Q1
	• Development of a business case	2018 Q2
	• Procurement	2018 Q3
	• Finalisation of partnership	2018 Q3
	Improved awareness regarding the use of public and private pharmacies	2019 Q1
	• Write communications strategy	2018 Q3
	• Implementation	2018 Q4
Business case	Development of a business case	2018 Q1
Design	Architectural support to design the new hospital build	2018 Q2
Construction of building	Procurement of a construction company	2018 Q3
Equipment	Procurement of equipment	2019 Q3
Certification	Independent certification	2019 Q4
Project Management	Support across all phases	2017 Q4-2019 Q4

1 Introduction

This report builds on the initial preparatory and diagnostic review work undertaken to date. Its aims are to:

- Determine the future demand and healthcare needs of the residents for Montserrat.
- Develop a range of options for the future configuration of healthcare service provision; each of which can be evaluated against a set of key criteria which balances quality and safety of care, with accessibility, deliverability, and sustainability.
- Establish the essential minimum package of care which residents can expect to receive access to within the affordability envelope.
- Assess the resource requirements for each option in terms of workforce and financial implications.
- Recommend the preferred way forward for the future delivery of healthcare services.

Current status

Our work to date has identified a health and social care system able to provide a broad range of services to its residents. Across primary and community care, the four clinics provide access to child health surveillance and chronic disease management clinics. Few of the clinics visited appear to be busy with average attendance at the nurse led clinics at two of the smaller clinics of between 4-5 patients a day. There are limited District Medical Officer (DMO) resources; each clinic is only able to provide access to the DMO one day a week except for St John's clinic which provides access on two days. There has been the successful recruitment of clinical psychologist to support the small team providing community mental health services and there is a busy public sector dental practice. There is also a health promotion officer and public health nurse and an environmental services team.

The hospital is able to provide casualty, medical, surgical, obstetric and paediatric services although each service remains vulnerable given that the majority of clinical services are medically managed single-handedly. The lack of population critical mass to meet minimum international standards for the provision of secondary care services remains an issue; resulting in challenges in the recruitment, staff complement, retention, training and professional development of clinical and clinical support staff.

Whilst the physical infrastructure and layout of many of the current facilities are less than ideal, there are examples in Dentistry and St John's clinic where these facilities are more able to provide care in accommodation which is fit for purpose.

Outside of health, the Government of Montserrat provides a mix of social care accommodation to manage residents with differing needs. This includes Look Out Villas providing warden assisted independent living, Golden Years, a 50 bedded residential home, and Margetson Memorial Home providing nursing home accommodation with capacity for 38 residents.

Providing support to the public health sector pharmacy and laboratory services is a private pharmacy and laboratory. Since the opening of the private laboratory, the hospital has been able to reduce the number of tests sent off-island. However, these services remain economically vulnerable.

Off-island providers play an important role in supplementing the care which is currently provided on-island through the provision of advice, access to a wider range of secondary care services and consultations, tertiary referral centres and advanced diagnostics.

Our overall summary from this phase of work point to a fragile local healthcare system characterised by:

- Single-handed clinicians across many clinical disciplines working in isolation.
- A lean skill-mix of qualified medical, nursing and clinical support staff.
- A reliance on a small number of clinical staff to provide 24/7 cover.
- Limited opportunities for staff training and continuing professional development.
- Light touch in terms of clinical governance oversight and review.
- Minimal local access to diagnostic equipment.
- Poor infrastructure across the hospital.

Therefore, given these issues and challenges, the need to consider the future organisation and direction for health care service delivery on Montserrat is key; exploring the range of potential options and its future relationship with off-island providers.

The way ahead

Maximising the use of available health service resources to achieve the greatest health care gain for the residents of Montserrat should remain the over-arching priority for the Government of Montserrat.

Ensuring that the care that is made available to residents, in terms of a minimum set of essential services, is safe, provides good quality care which can be appropriately staffed and delivers long term clinical sustainability, and which is financially viable are the under-pinning factors against which current and future health service options should be considered and assessed.

There is, of course, a need to be mindful of costs and to look at how best the current financial envelope for service delivery supports the implementation of the options. Where this is not feasible, it will be important to determine which service choices are made to maintain financial viability of services and/or how additional revenue can be generated to close the financial gap.

This paper considers a range of potential options and the extent to which they could be implemented, their potential benefits and financial costs. These future options can then be qualitatively assessed to recommend a future profile of services which should be offered to the residents of Montserrat.

Based on the baseline volume of current activity, the first stage of this exercise is to determine the future needs for health services for the residents of Montserrat.

2 Current levels of activity

An analysis has been undertaken of the current levels of hospital service activity, using both admission and surgical data from Glendon Hospital[1]. The 2015 breakdown is shown in Table 2.

Table 2: Hospital activity by service

Service	Category	2015 cases	Average length of stay (days)
Surgery	Day Case Surgery	16	0
	Admission with Procedure	51	8
	Other Admissions		
	Admission with Procedure (ward)	51	5.6
	Admission without Procedure	51	5.6
Maternity	Midwifery Led Births	20	2.8
	Midwife & Doctor Delivery	11	2.8
	Caesarean Sections (Planned)	14	4.6
	Caesarean Sections (Emergency)	4	5
	No Delivery/ Surgical Admission	21	5.2
Paediatrics	Day Case Surgery	1	0
	Routine Elective Surgery	14	2.1
	Emergency Medical	61	2.7
Medicine	Emergency	274	6
	Complex Emergency	25	13.5
Total		613	

Source: Glendon hospital admission data, 2015

These figures will be used as a baseline later in the report to illustrate projected demand in 2025, and the projected activity under each of the healthcare service options.

Certain important points to note from this analysis are:

- There was a total of 299 medical admissions, 152 surgical admissions, 75 paediatric admissions, 70 obstetric admissions, and 17-day case surgeries: totally 613 cases.
- The only surgeries that are coded as emergency in the Glendon hospital admission data are caesarean sections.
- The average length of stay for complex medicine cases (13.5 days) is considerably higher than in other services.

A similar profile of admissions was also observed in 2016. In total, there were a total of 629 admissions, excluding day cases. By specialty, there were 501 adult medical and surgical admissions, 70 obstetric related admissions and 58 paediatric admissions.

Further breakdown and commentary on this activity profile is provided within the detail of the next chapter.

[1] Patient identifiable data was stripped from the analysis to maintain confidentiality

3 Future service considerations

In addition to the future estimates of health care needs for the population of Montserrat, our work to date has identified the current strengths and weaknesses of each service provided on and off island and considered where services could be potentially strengthened to improve the efficiency and effectiveness of care provided. Aligned to this is also the consideration of what makes a service safe and provides good quality of care for patients. This means having an honest debate about the balance of health care delivery which can be appropriately provided on-island, given the limited resources and patient demand, versus what should be more appropriately provided through relationships with off-island providers who, through achieving a larger critical mass of patient demand, are able to provide access to a range of more specialist and clinical support services.

This section of the report identifies each service area critical to meet the future needs of Montserrat and considers the range of potential changes which could be made to meet the future needs, strengthen the service delivery and, where appropriate, their interdependencies with other clinical services.

3.1 Prevention and health promotion

Activities provided through this service are delivered by a health promotion officer, epidemiologist/health planner and public health nurse.

Strengths:

- Comprehensive approach to population health with a public health capability.
- Creative and resourceful use of limited budget.

Weaknesses:

- No formalisation of a team and technically not recognised as a unit under the MoHSS.

3.1.1 Future considerations

Given the increasing trends in non-communicable diseases, future consideration could be given to:

- Organisational restructuring and potential additional capacity to make the most of their public health capability, which are likely to achieve health gains in future years. In the main, there is a need for a director of primary care services, and formalisation of their public health unit, to ensure proper recognition in terms of their structure under the MoHSS.
- Better allocation of funding to projects directly related to prevention and health promotion.
- Greater opportunities for collaboration between the health sector and the education sector.
- Public health interest in increasing the number of children who have school meals, which may, or at least could be, a healthier option compared to the food from private vendors.

3.2 Primary care

This service is supported by DMOs and a cohort of community nursing staff who provide care and treatment of long term conditions and clinics for antenatal, family planning and nutrition.

Strengths:

- Accessible clinics across the main population conurbations.

- Health promotion facility at Cudjoe Head clinic.

Weaknesses:

- Limited access to DMO at most clinics.
- Isolated working for District Nurses.
- Small number of daily attendances at some clinics.
- Small number of antenatal contacts at some clinics.

3.2.1 Future considerations

Again, given the increasing trend in non-communicable diseases and the need to improve access to care provided by DMOs, consideration should be given to:

- The need for additional DMO capacity. For a population of 5,000 residents we recommend that there be an additional DMO post. This post could be combined with other duties performed at the hospital since there is little justification for a completely new and additional post.
- A consideration to consolidate services onto fewer clinic sites. This would ensure daily DMO cover at each clinic and provide peer support and increased skills development for district nursing staff.
- A review of antenatal clinic arrangements in the context of midwife staffing.
- An electronic patient record system developed across primary and secondary care services.

3.3 Dentistry

A purpose built facility staffed by a dental surgeon, dental nurse, two dental assistants and a receptionist.

Strengths:

- Facility is in very good condition, both in terms of equipment and aesthetic.
- Busy self-contained team providing a well operated service.

Weaknesses:

- No patient recall system for annual check-ups. This is related to a general lack of IT.
- Significant number of dental clients do not come until there is an acute problem.
- Delays in procurement processes for dental supplies.

3.3.1 Future considerations

Consideration be given to:

- Access to a pool of trusted locums who can provide cover during periods of leave.
- Re-establishment of the visiting orthodontist/specialist dental surgery service.
- Installation of an IT system that will allow for better patient management including patient recalls for annual checks.
- Improved procurement processes for dental supplies.

3.3.2 Environmental services

The team comprises a principal environmental health officer (EHO), supported by two environmental health officers and a vector control team.

Strengths:

- Managed successfully since the retirement of the senior EHO, and the subsequent removal of that vacancy.

Weaknesses:

- No clerical support, so when everyone is out in the field there is no administrative capacity.
- Absence of senior EHO puts pressure on principal EHO.
- Lack of storage space for equipment.

3.3.3 Future considerations

Consideration be given to:

- The appointment of a director of primary care appointed to which the environmental team could report to.
- Increased staffing levels to ensure that all compliance testing is undertaken.
- Future review of water storage facilities at the hospital and clinics.
- Securing backup generators at the clinics and hospital in case of an emergency.
- Improvements with technology, including a server for their documentation and physical equipment, such as a photocopier and thermometers for food testing.

3.4 Mental health

A community mental health program supported by a multidisciplinary team of a visiting psychiatrist, clinical psychologist, mental health nurse and a community mental health officer, with support by nurses and other healthcare workers and a long term support facility at Oriole Villas.

Strengths:

- A new Clinical psychologist in post. Starting new conversations in the community around mental health issues.
- Mental health awareness sessions through health promotion activities.
- Oriole villas provides some occupational therapy, and stimulation/relaxation type classes once a week.

Weaknesses:

- Unable to adequately support children with learning difficulties, ADHD, and autism etc. Needs to be better collaboration between education and mental health, in particular, those with special educational needs.

3.4.1 Future considerations

Based on the above and the increasing need to meet mental health needs, consideration be given to:

- Providing more appropriate secure facilities for short term rehabilitation programmes within either a hospital or mental health resource centre.
- Further health promotion and awareness raising sessions.
- Better coordination between mental health and primary care services.
- Improved in-reach into schools.
- Access to more occupational therapy services and day centre services both within mental health but also in supporting the elderly to live independently for longer and to enhance recovery and discharge from hospital.

- The Antigua referral system should be used more, as it is heavily resource intensive to keep an untreated patient on island, going back and forth between hospital and community services.

3.5 Secondary care

3.5.1 Hospital facility

The current secondary care hospital facility on-island at Glendon Hospital site is a 'temporary' accommodation solution following the destruction of the new hospital in 1995. The site comprises a casualty, general surgery, internal medicine, paediatrics and maternity services supported by a range of basic clinical support services; radiology, laboratory and pharmacy. The site currently has capacity for around 30 beds although current bed occupancy is typically between 30%-35% i.e. utilisation of around 10 beds on average.[2] Off-island providers play an important role in supplementing the care which is currently provided on-island through the provision of advice, access to a wider range of secondary care services and consultations, tertiary referral centres and advanced diagnostics.

3.5.1 Surgical Admissions

3.5.1.1 Profile of current service provision

In 2015, the Glendon Hospital had 152 surgical admissions. The service is clinically led by a general surgeon with training in paediatric surgery and there is an anaesthetist and a theatre nurse.

Table 3: Surgical Admissions by Diagnostic Category and Age Band

Diagnostic Category	15-24	25-44	45-64	65-74	75+	Grand Total
Diseases of the genitourinary system	6	16	9	2	3	36
Injury, poisoning and certain other consequences of external causes		6	8	3	3	20
Pregnancy, childbirth, and the puerperium	5	11	1			17
Diseases of the digestive system	2	2	6	3	1	14
Diseases of the musculoskeletal system and connective tissue		4	5	2	1	12
Neoplasms		2	5		3	10
Diseases of the circulatory system	1	3	3		2	9
Diseases of the skin and subcutaneous tissue	1	2	1	3	2	9
Endocrine, nutritional and metabolic diseases		2	2	1	2	7
Symptoms, signs and abnormal clinical and laboratory findings		3			3	6
Diseases of the respiratory system			1	1	1	3
Certain infectious and parasitic diseases	1	1			1	3
Mental and behavioural disorders	1		1		1	3
Factors influencing health status and contact with health services		2				2
Certain conditions originating in the perinatal period		1				1
Grand Total	17	55	42	15	23	152

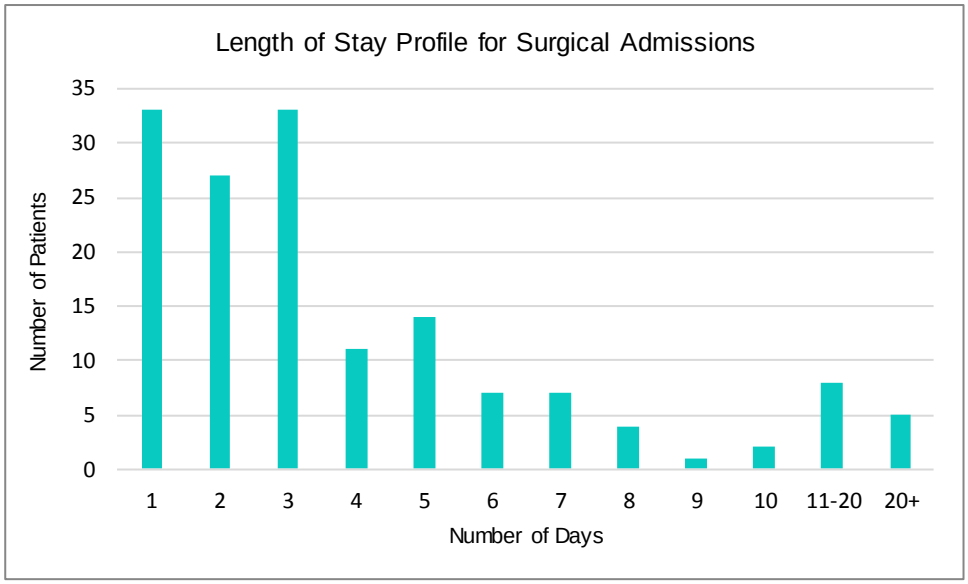
Source: Glendon Hospital Medical Records, 2015

[2] In 2016, data suggests that percentage bed occupancy was 35%.

3.5.1.2 Length of Stay for Surgical Admissions

The total number of bed days across these 152 admissions was 971 in 2015, with an average length of stay of 6.4 days.

Figure 1: Length of Stay Profile for Surgical Admissions



Source: Glendon Hospital Medical Records

3.5.2 Surgical Procedures

3.5.2.1 Profile of current service provision

Of the 152 surgical admissions, 51 led to a surgical procedure. Together with 16 day cases, 15 paediatric surgeries, and 18 caesarean sections, a total of 100 surgical procedures took place at Glendon Hospital in 2015.

Table 4: Surgical Procedures by Age Band

Surgical Procedure	0-14	15-24	25-44	45-64	65-74	75+	Grand Total
Obstetric surgery		9	20	4	1		34
Biopsy	2		3	8	2	1	16
Surgical removal procedures	7		1	1	1		10
Abdominal surgical procedures	2	1	1	4	2		10
Gynaecological surgery			6	2			8
Urologic surgery				4	1	2	7
Orthopaedic surgical procedures	4			1		1	6
Male genital surgery			1		1		2
Digestive system surgery			1			1	2
Dental surgery		1	1				2
Endocrine surgery			2				2
Surgical stitches			1				1
Grand Total	15	11	37	24	8	5	100

Source: Glendon Hospital Medical Records, 2015

94% of procedures were undertaken on an elective basis. By age, around 15% of surgical procedures are performed on children under 15 years of age. These are mainly minor procedures e.g. circumcision, which are performed by the specialist general surgeon who is dual trained in paediatric surgery. 34% of procedures have been categorized as obstetric surgeries and around 40% were major procedures.

The total number of procedures undertaken by the substantive general surgeon has reduced over the years. In 2012 and 2013, this accounted for almost 80% of cases. However, in 2014, this reduced to 64% and in 2015 to 69%. Whilst a locum surgeon is responsible for a significant proportion of the procedures being undertaken, in 2015, there was a large proportion of cases undertaken by visiting specialist accounting for 12% of cases. There were also 33 excision biopsies sent overseas, a similar proportion to previous years, of which around 15% were positive for malignancy.

A surgical outpatient clinic is provided weekly. In 2015, there were 513 attendances.

3.5.2.2 Off-island referrals for emergency and elective surgery

Off-island, a significant majority of emergency and elective surgery referrals are undertaken in Antigua. The largest of these providers is Mount St John Medical Centre (MSJMC), which is the public sector operated hospital on island. It is able to offer a range of secondary care and diagnostic services and in the future is looking to further develop specialisms in cardiology, transplants and oncology. It currently is unable to provide a dedicated urology and paediatric surgery service, although for the latter, the hospital can access a paediatric surgeon through Jamaica or Trinidad & Tobago. There is currently an unsigned Understanding of Agreement between the MoHSS and MSJMC.

Other current significant referrals centres are Ortho Medical Associates, based in Antigua, providing private orthopaedic consultations and surgery. On average, each month, this organisation undertakes approximately 15 outpatient consultations and 1-2 surgical operations on residents of Montserrat. A strong relationship has been built up between Ortho Medical Associates and Montserrat and approximately every two months, it has provided a visiting outpatient service at Glendon Hospital seeing between 30-50 patients a visit.

Medical Surgical Associates, another private provider in Antigua, principally offers a specialist general surgical service, including laparoscopic surgery, and has access to others who can provide specialist access to urology, gynaecology, plastic surgery, orthopaedics and neurosurgery.

Further afield, other Caribbean islands act as a referral centre for specialist services, including, for example, Guadeloupe for major trauma and burns[3] and Barbados for neurosurgery. Table 5 provides a profile of those off-island surgical referrals in 2016 where Medical Assistance financial support was provided.

Table 5: Off-island surgical procedures supported through Medical Assistance

Country	Procedure	Count
Antigua	Cataract surgery	2
	Fracture	3
	Polyectomy	1
Barbados	Transplant	2
	Cataract surgery	1

[3] Please note that in 2016, there were no oversea referrals to Guadeloupe supported through Medical Assistance

Country	Procedure	Count
Jamaica	Cauda Equina Syndrome	1
Santo Domingo	Fracture	1
St Kitts	Cataract surgery	1
Trinidad & Tobago	Pars Plana Vitrectory	1
Total		13

Source: Overseas Referrals, Government of Montserrat, 2016

3.5.2.3 Strength and weaknesses

Our assessment of the current on-island service provision has identified that whilst the hospital has been able to provide and maintain a general surgical service on-island, operating a single handed service does make the service vulnerable, both in terms of the silo working with limited peer review and the potential longer term sustainability if the current post holder were to leave. In addition, given the current limited facilities, the range of surgical procedures being performed which are categorised as major without access to high dependency or critical care facilities does present issues of potential patient safety.

In relation to off-island providers, whilst they are able to provide access to specialist care, this does come at a cost; some of which is borne by the patients themselves whilst others receive support through the government's Medical Assistance policy. Discussions with the off-island referral team at Montserrat has identified their preference to access emergency care services in Guadeloupe, where they consider the process for transfer and the quality of clinical care to be better than other providers.

3.5.2.4 Clinical interdependencies

To safely provide a general surgery service requires the support of a range of other clinical interdependent services. Figure 2 shows the relationship of the general surgery pathway to other clinical services. The darker shading represents a critical key relationship on-site whilst the lighter shading illustrates a need for a less intensive arrangement or network relationship.

Figure 2: Clinical interdependencies for General Surgery

Surgery Pathway	Clinical Interdependencies																		
	General Surgery	Casualty/Emergency Medicine	Internal Medicine	Maxillofacial Surgery	Vascular Surgery	Plastic Surgery	Burns	Neurosurgery	Cardiothoracic	Anaesthetics	Pathology	Radiology - X-Ray	Radiology - CT	Radiology - MRI	Pharmacy	Therapies	Critical Care	Theatre
Current on-island provison	■	■	■							■	■	■			■	■		■
Outpatients	■										■	■	▒	▒	▒	▒		
Day case	■									■	■	■	▒	▒	■	▒		■
Routine Elective	■									■	■	■	▒	▒	■	▒		■
Complex Elective	■									■	■	■	■	■	■	■	■	■
Emergency	■	■	■							■	■	■	▒	▒	■	▒	▒	■
Major Trauma	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

This shows that within the current service profile, outpatients and day case activity could be undertaken on-island whilst for complex elective and major trauma, there is a need to transfer these patients off-island. For routine elective and emergency care, these services could be

provided on-island, but only with the appropriate access to critical care and advanced diagnostics, or equally off-island.

3.5.3 Internal Medicine

3.5.3.1 Profile of current service provision

Of the 596 admissions at Glendon Hospital in 2015, a majority, 299, were medical admissions. Typically, these admissions are emergencies with the highest causes of admissions relating to diabetes mellitus, hypertension, and gastroenteritis. 25 have been categorised as complex emergencies.

There is a weekly outpatient clinic and in 2015, there were 311 attendances.

Table 6: Medical Admissions by Diagnostic Category and Age Band

Diagnostic Category	15-24	25-44	45-64	65-74	75+	Grand Total
Diseases of the circulatory system		7	16	11	30	64
Endocrine, nutritional, and metabolic diseases	1	3	23	11	15	53
Mental and behavioural disorders	3	5	4	6	10	28[4]
Diseases of the respiratory system		2	11	4	10	27
Diseases of the genitourinary system	2	4	4	4	6	20
Injury, poisoning and certain other consequences of external causes	6	3	4	2	3	18
Diseases of the digestive system		5	6		5	16
Certain infectious and parasitic diseases	3	4	4	1	3	15
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	3	2	3	3	3	14
Neoplasms		1	4	3	2	10
Diseases of the musculoskeletal system and connective tissue		2	2	2	2	8
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	2	2	3			7
Pregnancy, childbirth and the puerperium	1	2	1	1		5
Diseases of the skin and subcutaneous tissue	1				3	4
Diseases of the ear and mastoid process		1		1	1	3
Diseases of the nervous system			2		1	3
External causes of morbidity and mortality	1		1			2
Factors influencing health status and contact with health services		1				1
Certain conditions originating in the perinatal period	1					1
Grand Total	24	44	88	49	94	299

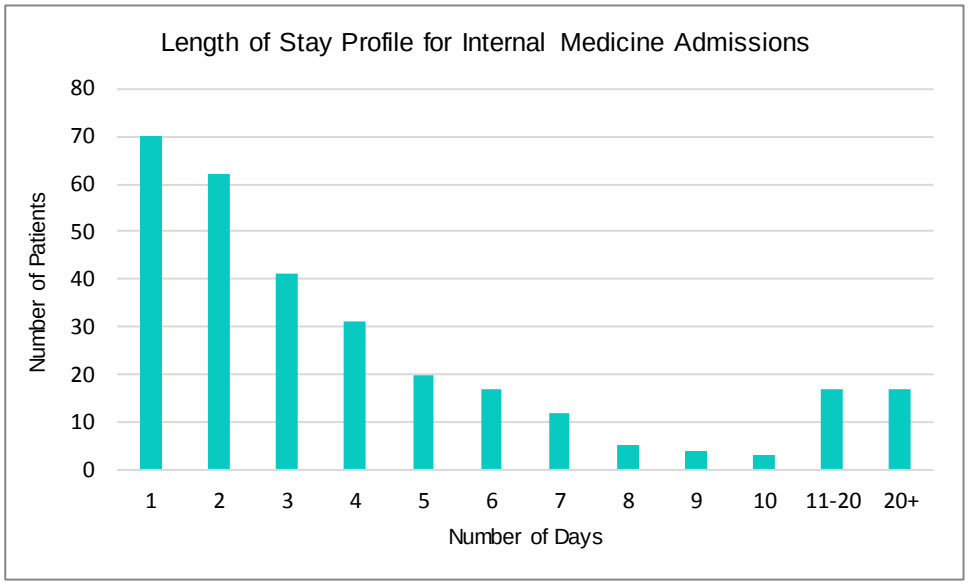
Source: Glendon Hospital Medical Records, 2015

3.5.3.2 Length of Stay

The total number of bed days across these 299 admissions was 1,983 in 2015, with an average length of stay of 6.6 days.

[4] Of these admissions, 6 admissions relate to repeat admissions for 3 patients.

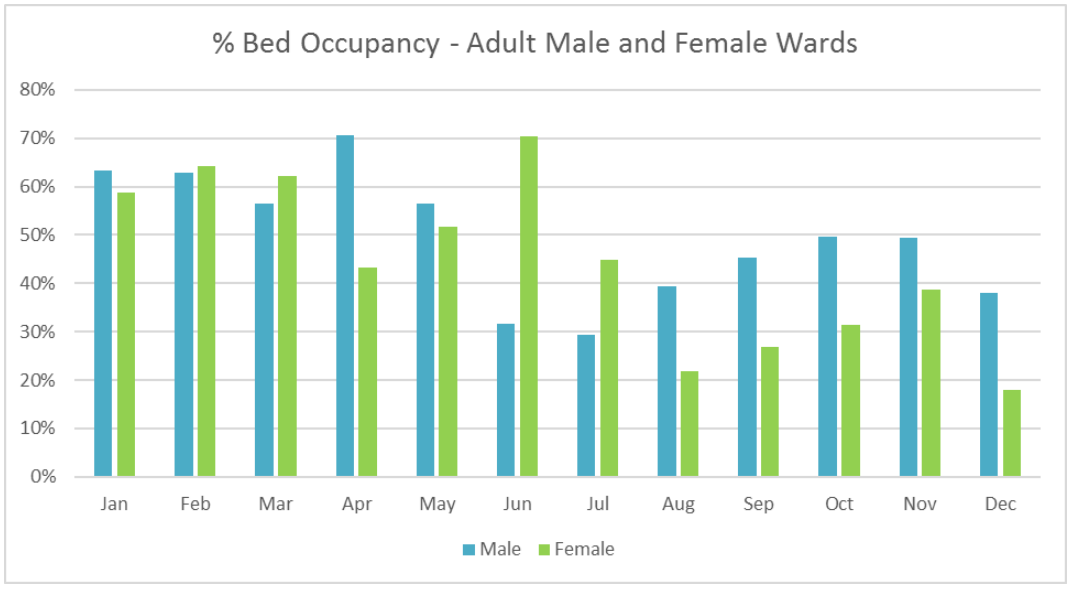
Figure 3: Length of Stay Profile for Internal Medicine Admissions



Source: Glendon Hospital Medical Records

In terms of bed occupancy, Figure 4 shows the seasonal profile of adult admissions across the male and female wards in 2016. This analysis includes both medical and surgical admissions. Overall, average bed occupancy across the 20 available beds was 47% although there is seasonal variation with male ward occupancy levels rising to between 60% to 70% during the first 6 months of the year but falling to between 20% to 50% for both male and female wards across the latter months of the year.

Figure 4: Profile of bed occupancy, 2016



Source: MoHSS

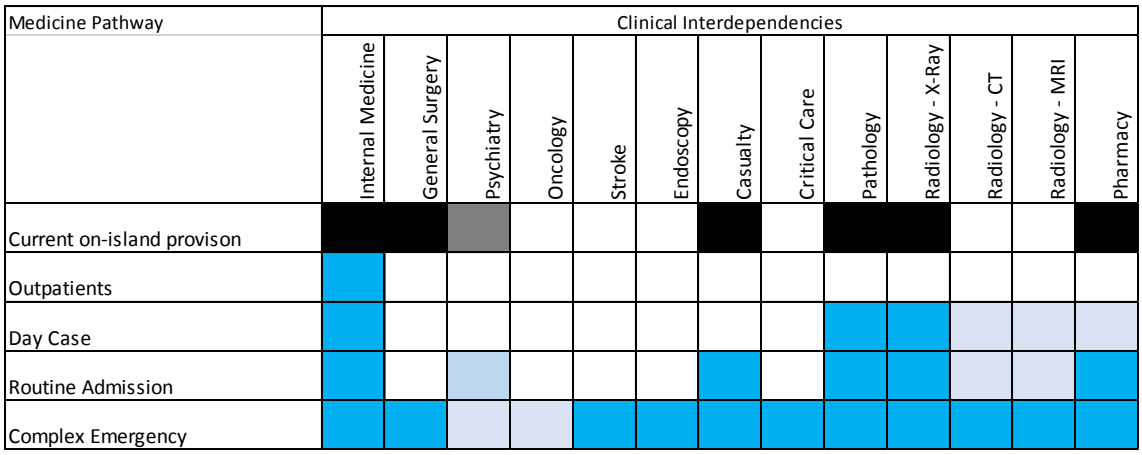
3.5.3.3 Strength and weaknesses

As with surgery, our assessment of the current on-island service provision has identified that whilst the hospital has been able to provide and maintain a medical service on-island, operating a single-handed service does make the service vulnerable, both in terms of the silo working with limited peer review and the potential longer term sustainability if the current post holder were to leave. However, since April 2017, the service has been strengthened with the appointment of a second internal medicine physician, thereby supporting its continued sustainability.

3.5.3.4 Clinical interdependencies

To safely provide an internal medicine service requires the support of a range of other clinical interdependent services. Figure 5 shows the relationship of internal medicine pathway to other clinical services. The darker shading represents a critical key relationship on-site whilst the lighter shading illustrates a need for a less intensive arrangement or network relationship.

Figure 5: Clinical interdependencies for Internal Medicine



This shows that within the current service profile, outpatients and day case activity could be undertaken on-island whilst for complex emergency admissions, there is a need to transfer these patients off-island. For routine medical admissions, these services could be provided on-island or equally off-island.

3.5.4 Paediatrics

3.5.4.1 Profile of current service provision

Glendon Hospital provides paediatric care. In 2015, there were 75 admissions, most of which were medical cases managed by the paediatrician. There were 14 cases of paediatric surgery undertaken by the general surgeon.

Off-island, MSJMC in Antigua provides paediatric medical care although paediatric surgery at this site is limited to visiting surgeons from Jamaica and Trinidad & Tobago.

Table 7: Paediatric Admissions by Diagnosis

Diagnostic Category	Medical	Surgical	Grand Total
Injury, poisoning and certain other consequences of external causes	7	6	13
Certain infectious and parasitic diseases	12		12

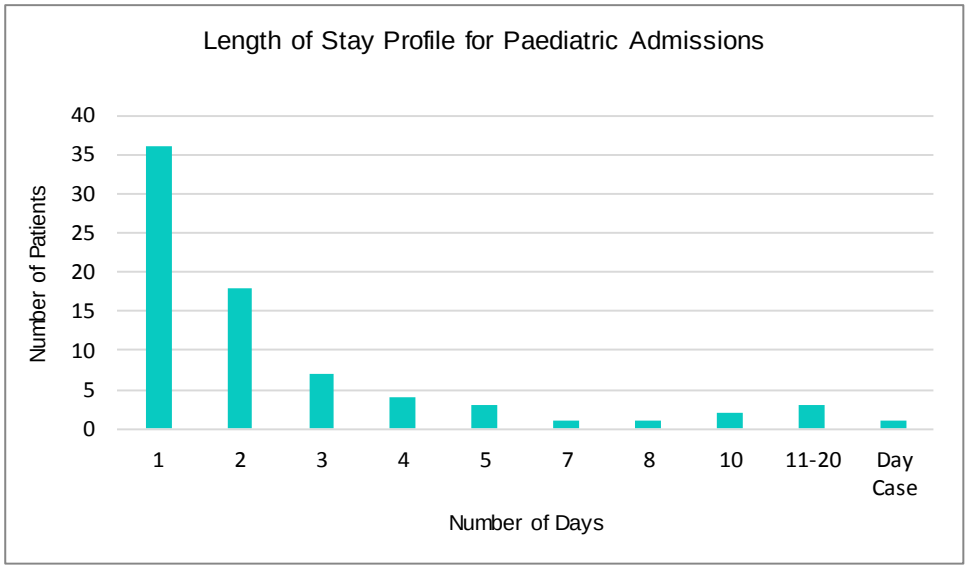
Diagnostic Category	Medical	Surgical	Grand Total
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	10		10
Diseases of the respiratory system	7		7
Diseases of the digestive system	4	2	6
Factors influencing health status and contact with health services	2	4	6
Certain conditions originating in the perinatal period	6		6
Mental and behavioural disorders	4		4
Diseases of the genitourinary system	3		3
Endocrine, nutritional and metabolic diseases	2		2
Diseases of the musculoskeletal system and connective tissue	1		1
Diseases of the circulatory system	1		1
Pregnancy, childbirth and the puerperium		1	1
Diseases of the skin and subcutaneous tissue		1	1
External causes of morbidity and mortality	1		1
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	1		1
Day Case (Non-admission)		1	1
Grand Total	61	15	76

Source: Glendon Hospital Medical Records, 2015

3.5.4.2 Length of Stay

The total number of bed days across these 76 admissions was 193 in 2015, with an average length of stay of 2.5 days.

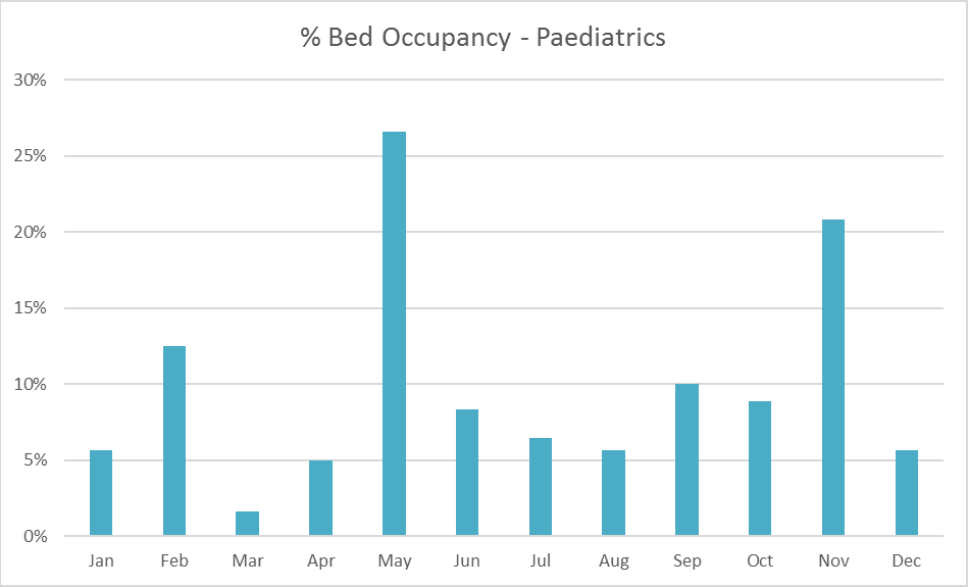
Figure 6: Length of Stay Profile for Paediatric Admissions



Source: Glendon Hospital Medical Records

Within the current hospital, there are 4 designated bed spaces for children. Looking at the admission profile in 2016, the average bed occupancy level was 10%, as shown in Figure 7 below. There are however, times when admissions peak, increasing bed occupancy to between 20% and 30%.

Figure 7: % Bed Occupancy, 2016



Source: MoHSS

3.5.4.3 Strengths and weaknesses

As with the other clinical services, paediatric medicine is clinically led by a single-handed paediatrician. Whilst Montserrat is fortunate is being able to recruit and maintain a paediatrician who is able to split their time between secondary and community care services, the sustainability of the service in the longer term remains challenging.

3.5.4.4 Clinical interdependencies

To safely provide paediatric medicine and paediatric surgery service requires the support of a range of other clinical interdependent services. Figure 8 shows the relationship of paediatric medicine and paediatric surgery to other clinical services. The darker shading represents a critical key relationship on-site whilst the lighter shading illustrates a need for a less intensive arrangement or network relationship.

Figure 8: Clinical interdependencies for Paediatric Medicine and Paediatric Surgery

Paediatric Medicine and Paediatric Surgery Pathway	Clinical Interdependencies											
	Casualty	Paediatrics	General Surgery	Paediatric Surgeon	Anaesthetics	Theatres	Critical Care	Pathology	Radiology - X-Ray	Radiology - CT	Radiology - MRI	Pharmacy
Current on-island provison	■	■	■		■	■		■	■			■
Outpatients		■						■	▒			▒
Paediatric Medical Admission		■						■	▒			▒
Day Case Surgery		■	■	■	■	■		■	■	▒	▒	■
Routine Elective Surgery		■	■	■	■	■	▒	■	■	▒	▒	■
Complex Elective Surgery		■		■	■	■	■	■	■	▒	▒	■
Emergency Surgery	■	■	■	■	■	■	■	■	■	■	▒	■

This shows that within the current service profile, outpatients and non-specialist paediatric medicine admissions could be undertaken on-island whilst for complex elective surgery and emergency surgery, there is a need to transfer these patients off-island. For day case and routine elective surgical admissions, access to a trained paediatric surgeon is required. However, the current general surgery service is able to perform minor paediatric surgical cases given the dual training of the surgeon. When not available, paediatric surgery cases should be referred off-island.

3.5.5 Maternity

3.5.5.1 Profile of current service provision

There were 70 obstetric admissions to Glendon Hospital in 2015 and a total of 49 births, in line with a birth rate of 10 per 1,000 which the island has seen in previous years. Just under half of deliveries are for first time mothers and approximately one third of births are by caesarean section undertaken by the general surgeon; a high rate in comparison with international standards. Of the non-delivery admissions, most relate to diseases of gynaecology. The maternity unit has access to an incubator for low birth weight babies.

Table 8: Obstetric Admissions by Diagnostic Category and Age

Diagnostic Category	15-24	25-44	Grand Total
Pregnancy, childbirth and the puerperium	19	31	50
Diseases of the genitourinary system	3	5	8
Certain infectious and parasitic diseases	3		3
Diseases of the respiratory system	1	1	2
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	2		2
Diseases of the circulatory system	1	1	2
Neoplasms		1	1
Certain conditions originating in the perinatal period		1	1
Diseases of the digestive system	1		1
Grand Total	30	40	70

Source: Glendon Hospital Medical Records, 2015

Table 9: Births in 2015 by Procedure and Age

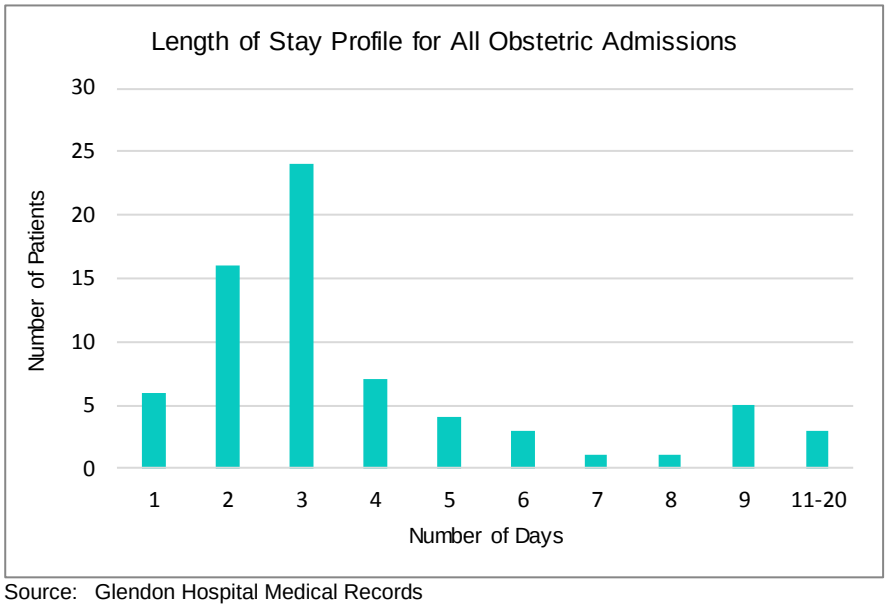
Procedure	15-24	25-44	Grand Total
Spontaneous vaginal delivery	11	16	27
Planned caesarean section	6	8	14
Emergency caesarean section		4	4
Spontaneous labour	2		2
Spontaneous abortion		2	2
Grand Total	19	30	49

Source: Glendon Hospital Medical Records, 2015

3.5.5.2 Length of Stay

The total number of bed days across the 70 obstetric admissions was 282 in 2015, with an average length of stay of 4 days.

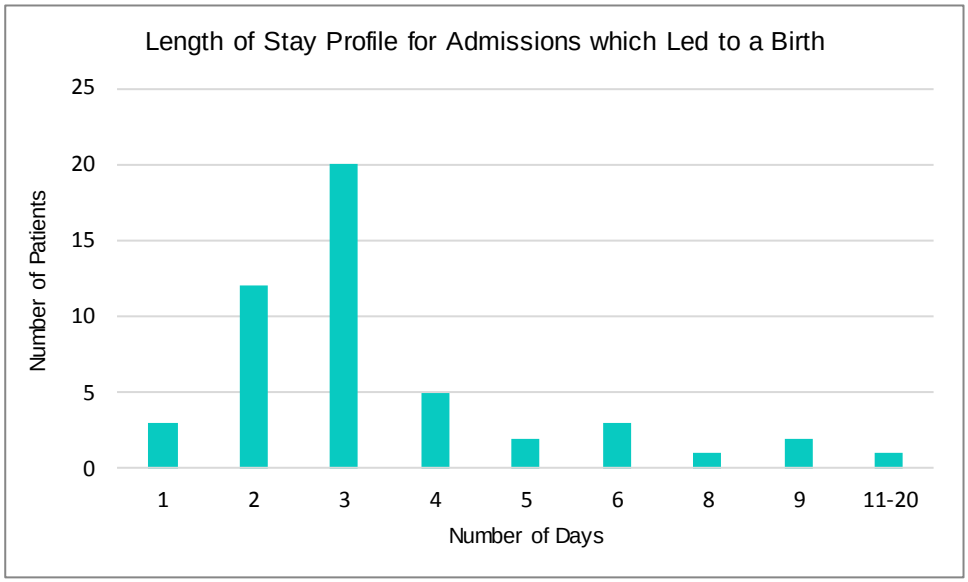
Figure 9: Length of Stay Profile for All Obstetric Admissions



Source: Glendon Hospital Medical Records

When only considering the 49 admissions which led to a birth, the total number of bed days was 59, with an average length of stay of 3.5 days.

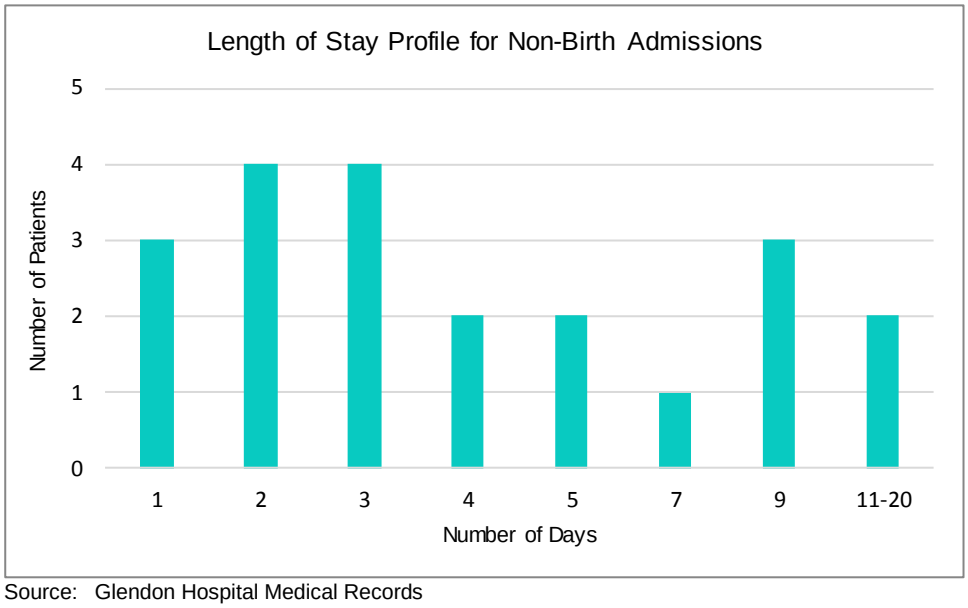
Figure 10: Length of Stay Profile for Admissions which led to a birth



Source: Glendon Hospital Medical Records

When considering the remaining 21 non-birth admissions, the total number of bed days was 110, with an average length of stay of 5.2 days.

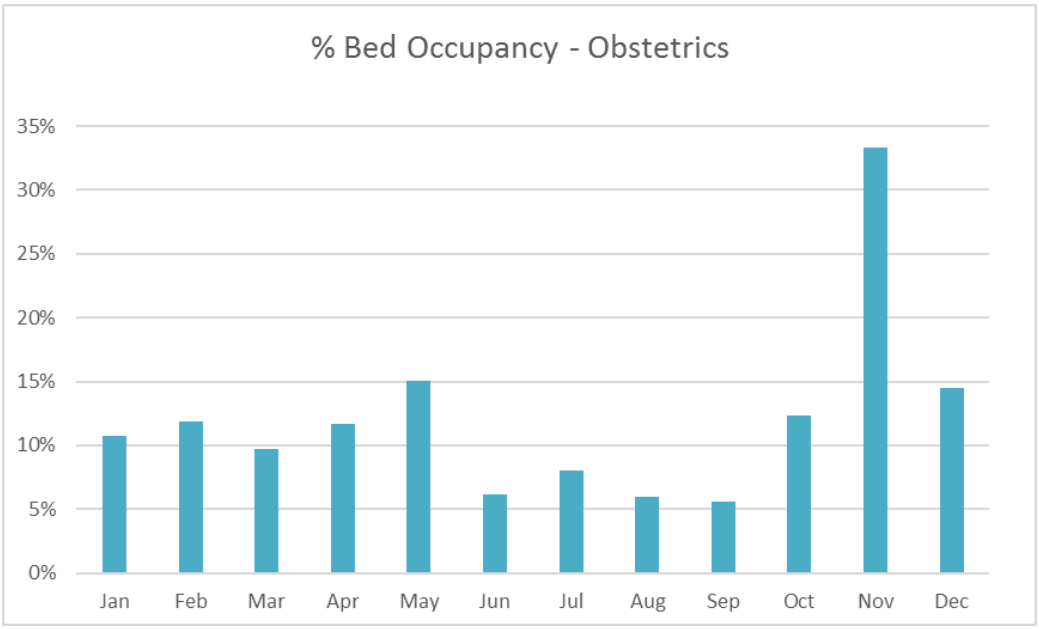
Figure 11: Length of Stay Profile for Non-Birth Admissions



Source: Glendon Hospital Medical Records

In terms of bed occupancy, the average current occupancy level across the 6 available beds was 12% in 2016. This is shown below in Figure 12. Occupancy levels are relatively stable for most of the year with the exception in November where it increases to almost 35%.

Figure 12: % Bed Occupancy, 2016



Source: MoHSS

3.5.5.3 Strengths and weaknesses

There is a cohort of qualified midwives able to provide support to the maternity unit on-island. However, there is no on-island access to an obstetrician or neonatology.

3.5.5.4 Evidence base

Hospitals that undertake a low volume of surgical procedures per year are known to have higher rates of adverse outcomes. This has been specifically shown for obstetrics, where there are evidently higher rates of maternal complications for deliveries in very low volume hospitals. One study conducted an analysis of over 1.5 million maternal hospitalisations across 1,000 hospitals, which were stratified into deciles based on delivery volume. Hospitals in the lowest two deciles (linked to the highest complication rates) had a mean childbirth volume of between 32-205 births per year, and a mean caesarean section volume of 12-64 per year. These low volumes are likely to create higher complication rates due to the limited capacity to promote experience and teamwork in the hospitals' obstetric settings.[5] Since there are only 50 births per year of which 30% are caesarean sections at Glendon hospital, it is therefore likely that there will be higher complication rates for maternal hospitalisations than would be expected for Montserrat's size and birth rate.

3.5.5.5 Clinical interdependencies

To safely provide maternity services requires the support of a range of other clinical interdependent services. Figure 13 shows the relationship of the maternity pathway to other clinical services. The darker shading represents a critical key relationship on-site whilst the lighter shading illustrates a need for a less intensive arrangement or network relationship.

[5] The association between hospital obstetrical volume and maternal postpartum complication, Kyser et al, American Journal of Obststrics and Gynaecology, 2012

Figure 13: Clinical interdependencies for Maternity Services

Maternity Pathway	Clinical Interdependencies												
	Community Nursing	Obstetrics/Gynaecology	Midwifery	General Surgery	Paediatrics	Neonatology	Anaesthetics	Theatre	Critical Care	Pathology	Radiology - Ultrasound	Radiology - X-Ray	Pharmacy
Current on-island provison	■		■	■	■		■	■		■	■	■	■
Antenatal	■												
Midwifery Led Births			■		■						■		■
Caesarean Sections (planned)		■	■	■	■	■	■	■	■	■	■	■	■
Caesarean Sections (emergency)		■	■	■	■	■	■	■	■	■	■	■	■
Complex births		■	■	■		■	■	■	■	■	■	■	■
Postnatal	■		■										

This shows that within the current service profile, antenatal, midwife led births and postnatal care could be undertaken on-island whilst for planned caesarean sections and complex births there is a need to transfer these patients off-island. For emergency caesarean sections, immediate access to an obstetrician or general surgeon is required together with access to critical care services.

3.5.6 Clinical support services

3.5.6.1 Radiology services

The Glendon hospital service provides x-ray and ultrasound services. In 2015 there were approximately 1,200 x-ray scans performed with between 20-45 requests for ultrasound a month. The service is staffed by one full-time radiographer/sonographer with support staff and is available 8am to 4pm each weekday with the radiographer on-call out of hours. A new digital x-ray has been procured and there is a request to requisition a new ultrasound.

Off-island, the MSJMC and the Belmont clinic in Antigua provide a broad range of diagnostic services, including CT, MRI and ECGs. On average, over the last 5 years, the Belmont clinic has undertaken over 975 studies completed on individuals from Montserrat; equivalent to around 200 studies per annum, on average. Between August 2015 and June 2017, 70 patients have received CT (approximately 35 per annum) with a similar number of individuals receiving MRI studies. The standard cost for a CT study is approximately $1,100 ECD and for a MRI study $1,800 ECD (excluding flight costs). Of these patients, in 2016 five received financial medical assistance for CT and 7 for MRI. The Belmont clinic has also been involved with the Montserrat Pink Ribbon Fund, providing mammography related procedures. Typically, within a year, 100 selected women could have benefitted from this service, the costs of which, at $450 ECD (excluding flight costs), are funded by the Pink Ribbon Fund and the Belmont clinic.

In total, 8 residents received financial assistance for CT and 8 for MRI scans in 2016. In assessing the overall annual demand off-island for CT and MRI scans, the proportion of those receiving financial assistance at Belmont compared with other off-island providers has been applied to the total number of scans performed at the Belmont clinic for Monserrat residents, to derive an annual demand for 56 CT scans and 40 MRI scans.

Strengths and weaknesses

The current on-island service is operated by a single-handed radiographer; requiring the individual to be on-call every day. There is no formal access to a radiologist and many of the x-rays are read by the hospital doctors or sent for a second opinion via Whats App. Equipment is old although this is being addressed through the current and planned procurement of a new digital x-ray and ultrasound.

Further considerations

To enhance the safety and quality of the reporting of scans, remote access reporting should be considered although the It may need to be upgraded to facilitate this. Once the digital x-ray machine is installed, potential links between the MSJMC or the Belmont clinic could be considered.

Further, given the regular need to access advanced diagnostics off-island, the clinical practicalities and cost effectiveness of being able to provide some of these services on-island should be considered. Based on data from the Belmont clinic, there are approximately 100 individuals accessing mammography services, 56 individuals accessing CT and 40 individuals accessing MRI services.

The Belmont clinic has previously held discussions with the MoHSS in Montserrat about the potential for installing their older mammography machine at the hospital site and the current radiographer undertaking these procedures on island with the reports being prepared by the radiologist at the Belmont clinic. Based on these discussions, there would be no cost to the MoHSS for the purchase of the equipment, only in providing suitable accommodation. The Belmont clinic would provide the training and supervision to the radiographer and the cost of each study would be at a rate equivalent to what they charge now in Antigua i.e. a cost saving on flights and transfers. Similarly, the Belmont clinic could undertake a similar service provision for CT; installing their current CT scanner on Montserrat when they upgrade this machine. Ideally, the provision of this additional diagnostic capability should be located at or close to the hospital.

Even if there were to be no public private partnership between the MoHSS and the Belmont clinic, there could be the possibility for the Belmont clinic to setup as a private enterprise on Montserrat.

3.5.6.2 Laboratory services

The laboratory service at the Glendon hospital provides blood sciences (biochemistry, haematology), microbiology and has a small blood bank. The laboratory also provides accommodation for phlebotomy. It is staffed by one senior medical technologist and three technologists. All staff are multidisciplinary across the laboratory sciences although there is no clerical support. The laboratory also takes part in quality control. The turnaround for reporting times for routine tests are usually the same day i.e. before 4pm although the service usually guarantees within 24hrs. Urgent requests are undertaken as soon as possible. Culture and sensitivity tests usually take up to 2-3 days. In 2015, approximately 24,000 laboratory tests were performed, comprised mainly of biochemistry (83%) and haematology (16%).

There is a private laboratory on-island who can undertake a wider selection of tests including PSA, thyroid function tests and hormone testing. The impact of this new enterprise has limited the volume of samples which need to be sent off-island. This laboratory provides a 24/7 on-call service and is linked into a quality assurance system.

Strengths and weaknesses

The current service is well staffed and able to perform the majority of tests which are required to support community and secondary care services on-island. The support of the private provider has further enhanced the local service capability and capacity.

Further considerations

Whilst the two laboratories operate separately, there is a formal agreement between the private sector laboratory and the MoHSS to provide additional laboratory testing services. Going forward, this agreement could be continued or, as an alternative, there is potential for a public private partnership between the MoHSS and the private laboratory provider whereby the entire public sector laboratory service could be contracted out. This could limit the risk to the MoHSS, in terms of issues around recruitment, retention and procurement etc., together with the commercial aspects of revenue collection.

3.5.6.3 Pharmacy services

The Glendon hospital pharmacy service dispenses medicines to inpatients and outpatients with around 800-900 prescriptions and 2,000 items dispensed per month. The staffing establishment is for two pharmacists and a technician. The pharmacy is part of the OECS Pharmaceutical Procurement Service (PPS) which provides a joint formulary and tendering process to secure significant cost savings.

There is a privately family run pharmacy in Brades. Patients presenting at the hospital pharmacy who are not exempt and have the ability to pay for medications, are encouraged to take their prescriptions to the private pharmacy. However, the number of prescriptions processed at the private pharmacy is considered to be less than 1% of all the volume processed by the hospital pharmacy[6].

Strength and Weaknesses

The hospital's participation in the OECS PPS to achieve improved purchasing power of pharmaceuticals provides a significant benefit to the MoHSS. However, the overuse of the public hospital pharmacy service with its flat fee rate for medicines compared with the private pharmacy is adding pressure to the hospital service and potentially jeopardising the viability of the private pharmacy.

Further considerations

The Community Health Services Regulations of the Public Health Act[7] states that' free medicines will be dispensed to those aged over 60 years and under 16, the indigent[8], students, health, police and prison staff, and all persons with listed chronic diseases. All other prescriptions must be filled in private pharmacies'. Therefore, there needs to be stricter adherence to this stated regulation which would reduce the costs of the service at Glendon hospital and ensure the longer term viability of the private pharmacy.

3.5.7 Social care

There are three publicly available social care facilities on-island:

[6] Proposal- 'Strengthening of Private Pharmacies'- Lee's Pharmacy

[7] Public Health Act, Government of Montserrat, 2002

[8] Those Montserrat residents who are living in poverty

- Margetson Memorial Home, a nursing home for the elderly with the capacity for 48 residents, the majority of which have a high dependency rating. Funding for the facility is through the Government of Montserrat.
- Golden Years Residential Home with a capacity for 50 residents but currently has 24 which run by a non-governmental foundation.
- Look Out Villas which provides warden assisted housing for 38 residents and is managed through the Community Services Department.

Strengths:

- A range of accommodation available to meet the differing needs of residents requiring long term institutional care.

Weaknesses:

- Structural issues with Margetson Memorial Home.
- Limited privacy for patients at both Margetson and Golden Years.
- No therapy support provided at Golden Years and Look Out Villas.
- Look Out Villas staffed by two wardens who are on-call and can do up to 14 hour shifts.

Future considerations

At Margetson Memorial Home, ancillary services including catering and laundry are shared with the Glendon hospital. Any new hospital development located at an alternative site would necessitate the need for the continuation of these support services to be provided to Margetson. Potentially, this could be through having its own on-site services or contracting these out to either the new hospital or a private sector provider. However, given the complexity of the meals required for the residents of Margetson, the latter option may prove difficult to achieve.

There are also structural and functional features with the Margetson Memorial Home including its open staircase, open veranda and flooding of the lower ground floor which renders it less than suitable for the care of the elderly and those most vulnerable.

For both Margetson and Golden Years residential homes, future investment to improve the privacy for residents and the manual handling facilities should be considered.

4 Needs analysis

In assessing the future need for access to health care services, the future profile demand will be largely predicated on several factors:

- Population demographic changes.
- Patterns of disease prevalence.
- Current access rates to services.

These factors combined will support the forecast estimate of future activity patterns and volumes across the service sectors.

Population demographics

The total population of Montserrat as per the most recent Census in 2011 was 4,922, which represented a 9% growth in the population since the previous census in 2001. The estimated mid-year population in Montserrat in 2015 was 5,012, representing an increase of 90 residents since 2011; representing an annual growth rate of approximately 0.5%. It is our understanding from conversations with the Statistics Department on Montserrat that no major population changes have occurred between mid-year 2015 and mid-year 2017.

Much of the resident population that left Montserrat following the island's volcanic eruption 20 years ago were the healthy young and middle-aged, leaving a disproportionate number of elderly residents on island as well as people with long term conditions. The impact of that migration 20 years later has resulted in a population profile whereby:

- 52% are men and 48% are women.
- 73% are nationals and 27% are non-nationals.
- 20% are aged under 15 and 14% are aged over 65.
- 53% are economically active, of which 95% are employed.

In comparison, Montserrat's next nearest neighbor, Antigua & Barbuda, has a population profile with 24% under 15 years and only 7% over 65 years although Barbados has a very similar age band profile to Montserrat.[9]

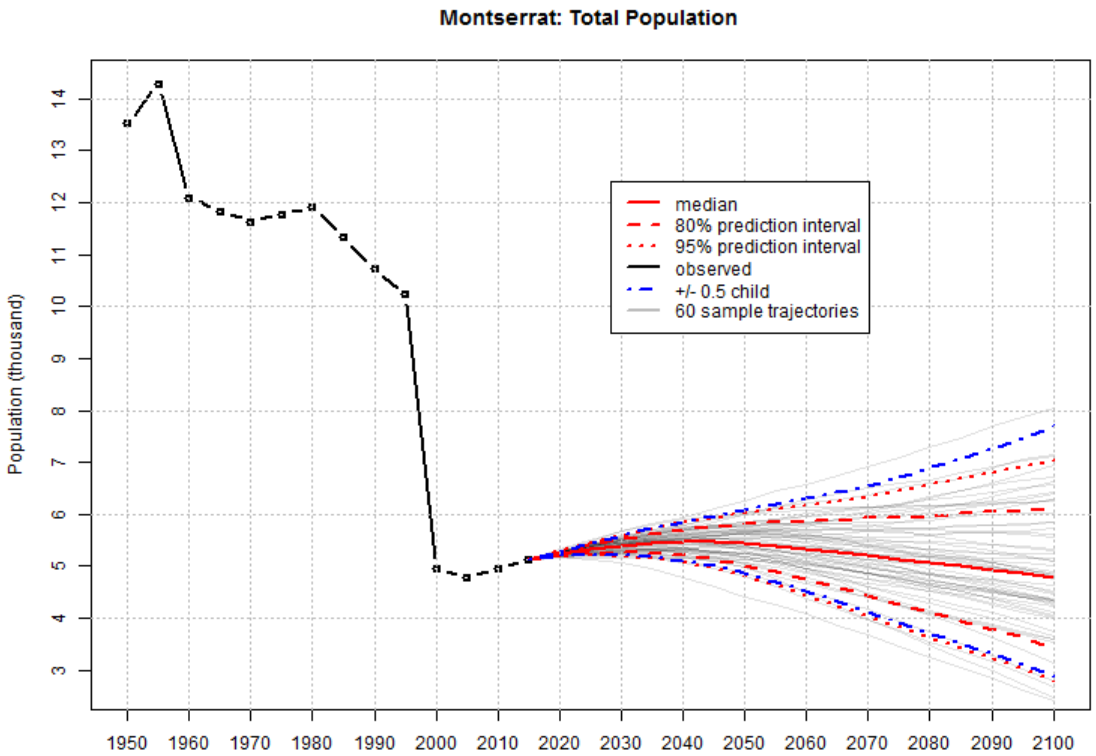
The Statistics Department on Montserrat do not provide population projections. Therefore, we have looked to use other available sources of population forecasts. The United Nations has forecast the future population of Montserrat at:

- 5,179 residents at 2017.
- 5,247 residents at 2020.
- 5,340 residents at 2025.

This is shown below in Figure 14 below.

[9] Population Estimates and Projections, 2015, The World Bank website

Figure 14: Future population forecasts



Based on this forecast, the population increase between the Statistics Department's 2015 mid-year population estimate of 5,012 and the United Nation's forecast of 5,340 in 2025 is an additional 328 residents; representing an annual growth rate of approximately 0.6%, similar to past trends.

In terms of age profile, looking at Barbados (which has a similar age structure to Montserrat), it is projected that the current 14% of over 65 year olds will increase to represent 19% of the total population.

There has also been some discussion regarding the diaspora. The national strategic development plan is potentially looking at building additional new homes. Some of this would be needed to accommodate the increased population over the next 10 years although potentially growth could be slightly higher than current forecast, although unlikely to be material.

4.1 Burden of disease

Montserrat faces considerable challenges around the prevalence of mental health conditions, rising levels of obesity and managing diabetes and hypertension, which are leading causes of death. Currently, island-wide, there are 700 patients registered at the clinics with non-communicable diseases[10]; the largest of which are for the diabetic and hypertension registers, as shown by clinic in Table 10 below. Across the top three categories (of which there is no patient

[10] Please note that whilst there are 700 patients identified across the various disease registers, some of the patients with multiple co-morbidities may be recorded on more than one register

duplication), there are currently 461 patient registered with hypertension and 290 patients registered with diabetes and i.e. 9% and 6% of the population respectively.

Table 10: Patients on Non-Communicable Disease Registers

Total Registered	St Johns	Cudjoe Head	Salem	St. Peter's	Island-wide
Diabetes	42	12	11	10	75
Hypertension	123	66	40	17	246
Diabetic/ Hypertensive	126	38	32	19	215
Heart Disease	25	6	3	3	37
Asthma	23	24	5	5	57
Alcohol related disorder	14	0	2	0	16
Mental illness	32	2	3	4	41
Anaemia (Hb<10)	6	1	1	4	12
Total	391	149	97	62	699

Source: Community Nursing Service, as at June 2017

However, the prevalence of diabetes in adults in Montserrat as at 2015 was reported to be 14%.[11] These figures published by the International Diabetes Federation and supplied by the Montserrat Diabetes Association reflect a similar profile to other Caribbean countries and therefore, highlight that there is currently a large proportion of who are undiagnosed and their ongoing care and monitoring needs are not being met through the current community clinic resources. This under-reporting of residents with diabetes is also likely to be repeated across the other NCDs.

In response to this growing trend, the MoHSS has developed several strategic priorities relating to these NCDs and mental health and there are high-level plans to increase the number of capacity building opportunities, and to carry out workplace screening. The strategic plan[12] includes estimates for improvement across several key performance indicators over the next few years. These improvements depend on the actualisation of the aims set out for improving population health. Comparing planned 2019/20 rates with actual 2015/16 rates, MoHSS is aiming for:

- 45% increase in the number of registered diabetic patients who complete an annual physical
- 20% increase in the number of registered diabetics, whose HbA1c is <7.5 at last visit
- 15% increase in the number of diabetics-hypertensives, whose BP is < 130/80 at last visit
- 15% increase in the number of registered hypertensives, whose BP was <140/90 at last visit
- At least a 3% decrease in the diabetes re-admission rate
- At least a 25% increase number of psychiatric cases treated in the primary care setting
- Undefined increase in the number of fully implemented and monitored care plans for the elderly.

Over the next 10 years, as the population ages and lives longer and with increasing trends in obesity, it is anticipated that the proportion of the population with NCDs will increase; in particular, those with diabetes and hypertension. For example, in the UK the number of people who have been diagnosed with diabetes was 3.2 million in the UK in 2013. This is estimated to increase to 5 million people having diabetes by 2025; a 56% increase in the number of people presenting with

[11] IDF North America and Caribbean Members, International Diabetes Federation website

[12] Strategic Plan, 2017/18 to 2019/20, Ministry of Health & Social Services, Government of Montserrat

the disease.[13] Based on this increase, the proportion of the population with diabetes in Montserrat by 2025 would be around 22%; equating to around 1,170 residents.[14]

This increase in the proportion of residents with diabetes will also lead to an increase in associated conditions, such as those with renal failure who require dialysis. Currently, there is no renal dialysis service provided on-island, with residents requiring this service seeking treatment off-island, most typically in the UK or other Caribbean islands for non-residents. An anecdotal estimate suggests that 25% of those on the diabetes register progress to renal failure.

4.2 Access and use of services

The community health services regulations of the Public Health Act (2002)[15], states that no fee shall be charged to any national resident[16] although 'aliens' and 'Caribbean residents' shall pay. Similarly, within the public hospital regulations, fees are charged separately for ward stays, consultations, investigations, medicines, surgery and special treatments. There are a number of exempt categories, including children, residents over 60 years, pregnant women, students, and essential public sector workers. This represents approximately 40% of the population[17] and interestingly represents 40% of hospital admissions. For those not exempt from payment within these public hospital regulations, national residents pay the standard fee rate with 'Caribbean residents' paying 1.5 times the standard rate and 'aliens' two times the fee rates.

Whilst fees are applicable for a proportion of the population, it must be borne in mind that the current fee levels within the schedule are low. For those on low incomes or unable to pay, there is a medical assistance policy which can provide financial support to patients following a means testing process. For those with savings of less than EC $8,000, charges for services are waived.

The extent to which the fee rates act as a barrier to access health care services is unclear and so we have undertaken some comparative analysis as set out below.

4.2.1 Casualty

The number of casualty attendances at Glendon Hospital in 2015 was 6,351, equating to an attendance rate of 1,267 per 1,000 population. Comparing this rate with a similarly set-up health care system, like the UK which saw 20.5 million A&E attendances in 2015/16[18] and represents a rate of 374 attendances per 1,000 population, shows that the volume of attendances at casualty in Glendon Hospital is over three times higher than in the UK. It is acknowledged that many of those patients who self-refer to the casualty department are more appropriate for primary care and this comparison would highlight that potentially only around 15% of attendances at Glendon Hospital are appropriate attendances assuming that appropriate primary and community services are available[19]. Primary care doctor's visits across the four clinics in 2015 totalled 3,034 visits.[20]

[13] Diabetes UK

[14] This is based on the current rate as identified by the International Diabetes Federation. There may, however, by further unmet need of undiagnosed cases although the number of these are unknown.

[15] Public Health Act, Government of Montserrat, 2002

[16] Defined as a person born in Montserrat and/or domiciled therein.

[17] Based on the 2011 Census Report published by the Statistics Department, Government of Montserrat. The proportion who are exempt may be over-stated given that there is no breakdown between resident status by age band.

[18] Hospital Accident & Emergency Activity, 2015/16, NHS Digital

[19] This analysis is based on the evidence from the King's Fund (https://www.kingsfund.org.uk/projects/urgent-emergency-care/urgent-and-emergency-care-mythbusters) which suggests that approximately 50% of attendances at UK A&E Departments could be appropriately treated elsewhere.

[20] Overall, the rate per 1,000 population of GP and A&E visits in England remain significantly higher(more than double) than the combined rate of doctor visits and Casualty department attendances in Montserrat.

4.2.2 Admissions

Based on the current level of admissions at Glendon Hospital of around 600 per annum, the current rate of admissions is approximately 120 per 1,000 population[21]. Admissions include those for general surgery, internal medicine, paediatrics and obstetrics. Again, comparing this rate of admissions across these specialties with other health economies operating a public health service, for example, the NHS in the UK, it may be possible to understand if the rate of admissions are significantly different. Across England in 2015/16, there were 8.5 million admissions[22] recorded under these specialties. Based on a population of 54.8 million, this level of admissions equates to an admission rate of 155 per 1,000 population. Given that there is a proportion of Montserrat population who are non-residents who self-refer and access healthcare services with their own country or elsewhere off-island, the rate current rate of admissions at Glendon Hospital across the four specialties provided would indicate that the current fee schedule does not act as a significant barrier to accessing care.

4.2.3 Surgical procedures

An analysis of surgical procedure volumes across small countries (less than 100,000 populations), Latin America & Caribbean, and all countries worldwide identifies that the median surgical procedure volumes were 52, 99, and 42 per 1,000 population respectively.[23]

It is not possible to determine an actual surgical rate per 1,000 population for Montserrat, as whilst it is known that some patients with the ability to pay elect to have their surgery off-island, quantification of this activity is not available.

Therefore, in terms of estimating the expected volume of surgery for residents of Montserrat, the country is most likely aligned to the figures of small countries and Latin America & Caribbean: range 52 – 99 per 1,000. Where data are available, other Caribbean islands demonstrate volumes within this range, such as the Cayman Islands (88). Others however demonstrate lower volumes than this range, for example St Vincent and the Grenadines (25) and Cuba (48).

Accordingly, the most realistic expectation would be that Montserrat operates closer to the level of small countries as set out above (less than 100,000 populations) as opposed to Latin America & Caribbean as a whole. This would be around 52 procedures per 1,000 population. Based on a 5,000 population size, this would translate into an expected 260 annual surgical procedures for the residents of Montserrat. At Glendon Hospital in 2015 there were 144 admissions and 17 day cases into surgery of which 100 procedures were undertaken within the theatre. In addition, there were an estimated 51 procedures performed on the ward, and 26 surgical procedures undertaken as overseas referrals where patients received government medical assistance. Four of these surgical referrals were emergency medical evacuations.

Combining the on-island and off-island medical assistance procedure volumes generates a rate which is over two thirds of what might be realistically expected. Given that some patients have the ability to pay and may therefore elect to have their surgery off-island, the current rate of surgery on-island is probably of reasonable scale.

[21] Please note that this analysis excludes those who self-refer off-island.

[22] Hospital Episode Statistics, NHS Digital

[23] These calculations are based on data from the World Bank, which sources the United Nations Population Division, World Health Organization, and various other organisations. Surgical procedures are defined as the number of procedures undertaken in an operating theatre per year in each country. A procedure is defined as the incision, excision, or manipulation of tissue that needs regional or general anaesthesia, or profound sedation to control pain.

4.3 Conclusion

Based on the analysis above, the estimated forecast demand for healthcare services by 2025 to meet the needs of around 5,300 residents is shown in Table 11 below.

Table 11: Estimated forecast activity volumes of principal service areas

Service	2015	2025	Basis for forecast
Primary care – doctor's visits	3,034	9,000	Shift of primary care attendances away from the Casualty Department. Uplifted in line with population change
Chronic diseases - diabetes	75	300	Based on future prevalence and population change
Chronic diseases – diabetic hypertensives	215	900	Based on future prevalence and population change
Chronic diseases - hypertension	246	470	Based on future prevalence and population change
Chronic disease - other	122	130	Based on population change
Renal dialysis	n/a	9	Based on evidence from the UK and USA
Mental health	41	55	Based on uplift of 25% of cases treated and population change
Antenatal	257	275	Based on population change
Family planning	115	120	Based on population change
Dentistry	2,273	2,400	Based on population change
Casualty	6,351	1,000	Casualty appropriate attendances only. Uplifted in line with population change
Admissions – total	596	635	Based on population change
Admissions – surgery	243	259	Based on approximate rate per 1,000 and population change. Represents on-island and off-island activity
Admissions - Maternity/Obstetrics	49	52	Based on population change
Surgical Day cases	17	18	Based on population change
Outpatients (Medical and Surgical)	824	900	Based on population change
Outpatients (Visiting Specialist)	194	400	Based on projection of more regular and new visiting specialists
Consultations (off-island)	160	170	Based on uplift of those receiving financial assistance in 2016. Further uplift to reflect population change
Admissions (off-island)	50	53	Based on uplifting that proportion of residents who receive financial assistance in 2016. Uplift based on population change
Radiology – X-ray	1,218	1,298	Annual volume at Glendon Hospital. Uplift based on population change
Radiology - Ultrasound	390	416	Approximate annual volume at Glendon Hospital based on 33 requests per month. Forecast based on population change
Radiology - ECG	311	331	Based on population change
Radiology – CT	56	60	Based on population change
Radiology - MRI	40	43	Based on population change
Radiology (others)	8	9	Based on those receiving financial assistance in 2016. Uplift based on population change

A further analysis has been undertaken of the medical and surgical admission data, to understand the projected activity for each service at Glendon Hospital in 2025, based on the same methodology. The 2025 projected breakdown is shown in Table 12. It has been assumed that average length of stay remains constant. This estimated forecast of demand will be used to

assess the capacity and workforce requirements under the future potential configuration options of services on and off-island.

Table 12: Glendon Hospital activity by service

Service	Category	2015 cases	2025 projected cases	Average length of stay (days)
Surgery	Day Case Surgery	16	17	0
	Admission with Procedure	51	54	8
	Other Admissions			
	Admission with Procedure (ward)	51	54	5.6
	Admission without Procedure	51	54	5.6
Maternity	Midwifery Led Births	20	21	2.8
	Midwife & Doctor Delivery	11	12	2.8
	Caesarean Sections (Planned)	14	15	4.6
	Caesarean Sections (Emergency)	4	4	5
	No Delivery/ Surgical Admission	21	22	5.2
Paediatrics	Day Case Surgery	1	1	0
	Routine Elective Surgery	14	15	2.1
	Emergency Medical	61	65	2.7
Medicine	Emergency	274	292	6
	Complex Emergency	25	27	13.5
Total		613	653	

Source: Glendon hospital admission data.

5 Defining the options

5.1 Introduction

Having assessed each of the clinical services and considered potential future changes, a range of potential options can be developed taking account of the requirements for clinical interdependencies, where relevant. For each of these options, the capacity and workforce requirements can be derived and an estimation of the expenditure calculated.

The future emphasis within most developed healthcare systems across the world is to look to implement those plans and recommendations within health promotion and preventative care which are most likely to have the longer-term impact of the health of the population. Therefore, to limit the number of potential combinations of service considerations and hence the number of options for this review, we have assumed that for each option, the considerations across health promotion and primary care are implemented within each option.

In addition, there can seem little clinical merit or effective use of resources in not continuing to provide on-island:

- Medical and surgical outpatients.
- Day case general surgery procedures.
- Community based antenatal and postnatal care.
- Paediatric outpatients.
- Routine medical emergency admissions.

In contrast, there can be no doubt that, for conditions such as major trauma, complex elective general surgery, complex births and complex paediatric surgery, access to care for these services should continue to be through off-island referrals.

Over and above the Status Quo, this then generates 5 potential options centred around secondary care services, each of which has consistent sub-options for community and clinical support services.

For community services, the sub-options are for:

- Existing access to four clinic sites.
- Reduction to three clinic sites: Salem, Cudjoe Head and St John’s
- Reduction to three clinic sites: Cudjoe Head, St John’s and one co-located at the new hospital site.

In addition, we have assumed a part-time role of primary care manager and visiting orthodontist across all the options.

In relation to the clinical support services, these sub-options are for:

- On-island radiology services for x-ray, ultrasound and ECG with off-island access to mammography, CT and MRI
- On-island radiology services for x-ray, ultrasound, ECG, CT and mammography with off-island access to MRI
- On-island hospital and private laboratory (as is)
- On-island single private sector laboratory service.

For mental health, one of our future considerations was for the MoHSS to make better use of the Antigua referral system for patients with psychiatric conditions. This is since it can be heavily resource intensive to keep an untreated patient on island, going back and forth between hospital and community services for any psychosocial support. The recent introduction of the clinical psychologist however will result in an increased presence of psychological support on-island, which may offset some of the need for services on Antigua. Moreover, the developing relationship between the psychologist and the visiting psychiatrist will also likely improve the long-term management of patients on-island. Still, there are reports of the difficulty in managing acute psychiatric episodes at Glendon hospital. This is mainly since there is no permanent psychiatrist on-island, and minimal facilities to enable the safety and welfare of patients with severe psychiatric needs. Therefore, in terms of the more complex psychiatric cases, it may be advisable for some of these patients to be transferred off-island. Our analysis of Glendon hospital admission data showed that there are around 10 admissions for psychosis and schizophrenia per year. All, or at least a proportion of these cases, may at some point require longer term care in an established psychiatric facility to ensure the best outcomes for the patient. An episode of appropriate secondary care off-island may then, in the long-term, facilitate a better transition into primary care management on Montserrat between the clinical psychologist and visiting psychiatrist. We have assumed these 10 off-island referrals each year across all options.

The 5 potential options are summarised below and each is then presented in detail.

Table 13: The Options

Option	Overview
Status Quo	Continuation of general surgery, medicine, routine paediatric surgery and most maternity deliveries on island.
Option 1	Continue to provide adult and paediatric general surgery on-island. Planned caesarean sections provided off-island.
Option 2	Continue to provide adult general surgery on-island. Caesarean sections provided on-island through a visiting obstetrician/ gynaecology service. All paediatric surgery provided off island.
Option 3	Continue to provide adult general surgery on-island. All paediatric surgery and planned caesarean sections provided off-island.
Option 4	Continue to provide adult general surgery on-island. All paediatric surgery and paediatric medicine to be provided off island. (A visiting paediatrician will provide outpatients on-island). All caesarean sections to be provided off island, including any expected complex births.
Option 5	Adult and paediatric outpatient and day case surgery provided on island, supported by a visiting anaesthetist. Paediatric medicine provided on-island. Midwifery led births provided on-island. Inpatient adult general surgery and paediatric surgery provided off island. Complex adult medical admissions provided off-island. All caesarean sections to be provided off island, including any expected complex births.

5.2 Status Quo

This is the closest to what is currently being provided and would see the continuation of general surgery, medical admissions, routine paediatric surgery and most maternity deliveries on-island, as shown in Figure 15. Surgery services for adults and children together with procedures to perform caesarean sections would continue to be undertaken by the on-island general surgeon.

To support the provision of general surgery and the stabilisation of emergency patients for off-island transfer, a critical care facility would be provided.

Figure 15: Status Quo

		Do Minimum	
		On-island	Off-island
Surgery	Routine Elective		
	Emergency		
Maternity	Midwifery Led Births		
	Caesarean Sections (planned)		
	Caesarean Sections (emergency)		
Paediatrics	Day Case Surgery		
	Routine Elective Surgery		
	Emergency		
Medicine	Complex Emergency		
Supporting Clinical Services	Anaesthetics		
	Critical Care		
Obstetrics/Gynaecology	Visiting service		

5.2.1 Demand and capacity requirements on-island

An analysis has been undertaken of the medical and surgical admission data, to understand the projected activity for each service under the Status Quo option. The 2025 projected breakdown is used as the reference point, assuming the average length of stay (ALOS) remains constant. Occupied bed requirements have been modelled.

Table 14: Glendon Hospital activity by service under the Status Quo option

Service	Category	Status Quo projected cases (2025)	Average length of stay (days)	Beds (2025)
Surgery	Day Case Surgery	17	0	0.00
	Admission with procedure	54	8	1.19
	Other admissions			
	Admission with procedure (ward)	54	5.6	0.83
	Admission without procedure	54	5.6	0.83
Maternity	Midwifery Led Births	21	2.8	0.16
	Midwife & doctor delivery	12	2.8	0.09
	Caesarean Sections (planned)	15	4.6	0.19
	Caesarean Sections (emergency)	4	5	0.06
	No delivery/ surgical admission	22	5.2	0.32
Paediatrics	Day Case Surgery	1	0	0.00
	Routine Elective Surgery	15	2.1	0.09
	Emergency Medical	65	2.7	0.48
Medicine	Emergency	292	6	4.80
	Complex Emergency	27	13.5	0.99
Total		653		10.01

Source: Glendon hospital admission data

This shows that the modelled bed requirement to accommodate this level of future demand in admissions is around 10 beds. Note that no bed occupancy level has been factored into the analysis at this stage; i.e. it assumes a 100% bed occupancy level. The assumption regarding the application of an acceptable level of bed occupancy which creates sufficient capacity to manage

the seasonal fluctuations in the demands for admissions versus making best use of resources will be discussed in Section 6 as part of the functional requirements for the future hospital service.

5.2.2 Workforce requirements and development plan

Table 15 identifies the current workforce establishment and this has been determined to be appropriate to meet the requirements of this 'Status Quo' option over the next 5 years.

Table 15: Status Quo workforce requirements (current budgeted establishment)

Staff group	Post	Establishment
Medical staff	Casualty Officer	1
	Medical Physician	2
	General Surgeon	1
	Paediatrician	1
	District Medical Officer	1
	Anaesthetist	1
	Visiting Specialist - gynaecologist	1
	Visiting Specialist - orthopaedic surgeon	1
	Visiting Specialist - ophthalmologist	1
	Visiting Specialist - psychiatric consultant	1
Nursing staff	Principal Nursing Officer	1
	Community Nursing Manager	1
	Hospital Nursing Manager	1
	Sister Tutor	1
	Psychiatric Nurse	1
	Ward Sister	3
	Home Manager Elderly	1
	Nurse Anaesthetist	1
	Staff District Nurse	13
	Graduate Registered Nurse	11
	Senior Enrolled Nursing Assistant	3
	Enrolled Nursing Assistant	8
	Community health aides	6
	Public Health Nurse	2
	Community psychiatric nurse	1
	Geriatric aide	26
Therapies	Physiotherapist	1
	Dietetic technician	1
	Nutrition Officer	1
	Diet clerk/ storekeeper	1
	Assistant storekeeper	1
Clinical Support Services	Senior Pharmacist	1
	Pharmacist	2
	Pharmacy Technician	1
	Radiographer	1
	Radiography Technician	1
	Senior Medical Technologists	1
	Medical Technologists	3
	Secondary care manager	1

Staff group	Post	Establishment
Dental	Dental Surgeon	1
	Dental Nurse	1
	Dental assistant	2
Mental health	Clinical Psychologist	1
	Community Mental Health Officer	1
	Senior warden	1
	Warden	2
Health Promotion	Health Planner/ Epidemiologist	1
	Health Promotion Officer	1
Facilities	Maintenance Assistant	1
	Health Facilities Manager	1
	Supervisor of Housekeeping	1
	Head cook	2
	Cook	5
	Cook's assistant	2
	Seamstress	1
	Maid	19
	Washer	5
Environmental services	Principal Environmental Health Officer	1
	Environmental Health Officer	2
	Vector Control Leader	1
	Vector Worker	3
	Tip man/ sanitary workers	4
	Driver	1
	Cemetery worker	1
Corporate services	Permanent secretary	1
	Chief Medical Officer	1
	Assistant secretary	2
	Health information officer	1
	Clerical officer	1
	Senior clerical officer	2
	Clerical officer (primary health care)	2
	Cleaner (primary health care)	3
	Senior health information officer (secondary care)	1
	Health information officer (secondary care)	1
	Senior clerical officer (secondary care)	2
	Clerical officer (secondary care)	2
	Driver	6
	Orderly	6

Source: Ministry of Health and Social Services Salary Scales 2017/18

5.3 Option 1: Adult and paediatric general surgery on-island

Under this option, the current profile of general surgical procedures undertaken on both adults and children would continue on-island. However, planned caesarean sections would be transferred off-island to the care of an obstetrician/gynaecologist who would undertake this procedure with the back-up of on-site general surgery, critical care and neonatal care.

Within the functional content of the on-island hospital, there would be a need for an operating theatre and critical care facility for stabilisation and monitoring post-operatively and for emergency transfers.

This profile of services on and off-island is shown in Figure 16 below.

Figure 16: Option 1 (adult and paediatric general surgery on-island)

		Option 1 - General Surgery (Permanent on-island basis). Includes Paed Surgery.	
		On-island	Off-island
Surgery	Routine Elective		
	Emergency		
Maternity	Midwifery Led Births		
	Caesarean Sections (planned)		
	Caesarean Sections (emergency)		
Paediatrics	Day Case Surgery		
	Routine Elective Surgery		
	Emergency		
Medicine	Complex Emergency		
Supporting Clinical Services	Anaesthetics		
	Critical Care		
Obstetrics/Gynaecology	Visiting service		

5.3.1 Demand and capacity requirements on-island

An analysis has been undertaken of the medical and surgical admission data, to understand the projected activity for each service under Option 1. The 2025 projected breakdown is used as the reference point, assuming the average length of stay (ALOS) remains constant.

Table 16: Hospital activity by service under Option 1

Service	Category	Option 1 projected cases (2025)	Average length of stay (days)	Beds (2025)
Surgery	Day Case Surgery	17	0	0.00
	Admission with procedure	54	8	1.19
	Other Admissions			
	Admission with procedure (ward)	54	5.6	0.83
	Admission without procedure	54	5.6	0.83
Maternity	Midwifery Led Births	21	2.8	0.16
	Midwife & doctor delivery	12	2.8	0.09
	Caesarean Sections (planned)	0	4.6	0.00
	Caesarean Sections (emergency)	4	5	0.06
	No delivery/ surgical admission	22	5.2	0.32
Paediatrics	Day Case Surgery	1	0	0.00
	Routine Elective Surgery	15	2.1	0.09
	Emergency Medical	65	2.7	0.48
Medicine	Emergency	292	6	4.80
	Complex Emergency	27	13.5	0.99

Service	Category	Option 1 projected cases (2025)	Average length of stay (days)	Beds (2025)
Total		638	9.82	

Source: Based on Glendon hospital admission data

The overall requirements for hospital beds, including a high dependency bed for post-operative patients and emergency transfers, would be around 11 beds. As discussed in section 5.2.1, no assumption has been made at this stage regarding the application of a bed occupancy level which would need to be factored into this analysis. This is discussed further in Section 6.

5.3.2 Workforce requirements and development plan

The table below outlines the change in workforce requirements between this option and that of the 'Status Quo' option.

Table 17: Option 1 workforce requirements

Staff group	Post	Option 1 establishment
Clinical support services	Radiologist (remote for X-ray only)	1
Corporate services	Primary care manager	0.2
Dental	Visiting Orthodontist	1
Nursing staff	Critical Care Nurse	1
	Family Nurse Practitioner	1
	Midwife	1
	Neonatal Nurse	1
Therapies	Occupational therapist	1
Environmental services	Senior Environmental Health Officer	1
Total		8.2

Source: Ministry of Health and Social Services Salary Scales 2017/18

5.4 Option 2: Adult general surgery on-island with regular visiting obstetrician/ gynaecologist support

Under this option, the current profile of adult general surgical procedures would continue on-island. However, day case and elective inpatient surgery on children would be transferred off-island to the care of a specialist paediatric surgeon.

There would also be more a regular visiting programme by an obstetrician/gynaecology service who can provide support to the general surgeon in terms of maintaining the planned and emergency caesarean section service currently being undertaken.

Within the functional content of the on-island hospital, there would be a need for an operating theatre and critical care facility for stabilisation and monitoring post-operatively and for emergency transfers.

This profile of secondary care services on and off-island is shown in Figure 17 below.

Figure 17: Option 2: general surgery on-island with regular support from visiting obstetrics/gynaecology service

		Option 2 - General surgery on-island and with regular visiting Obstetrician/ Gynaecologist.	
		On-island	Off-island
Surgery	Routine Elective		
	Emergency		
Maternity	Midwifery Led Births		
	Caesarean Sections (planned)		
	Caesarean Sections (emergency)		
Paediatrics	Day Case Surgery		
	Routine Elective Surgery		
	Emergency		
Medicine	Complex Emergency		
Supporting Clinical Services	Anaesthetics		
	Critical Care		
Obstetrics/Gynaecology	Visiting service		

5.4.1 Demand and capacity requirements on-island

An analysis has been undertaken of the medical and surgical admission data, to understand the projected activity for each service under Option 2. The 2025 projected breakdown is used as the reference point, assuming the average length of stay (ALOS) remains constant.

Table 18: Hospital activity by service under Option 2

Service	Category	Option 2 projected cases	Average length of stay (days)	Beds
Surgery	Day Case Surgery	17	0	0.00
	Admission with procedure	54	8	1.19
	Other Admissions			
	Admission with procedure (ward)	54	5.6	0.83
	Admission without procedure	54	5.6	0.83
Maternity	Midwifery Led Births	21	2.8	0.16
	Midwife & doctor delivery	12	2.8	0.09
	Caesarean Sections (planned)	15	4.6	0.19
	Caesarean Sections (emergency)	4	5	0.06
	No delivery/ surgical admission	22	5.2	0.32
Paediatrics	Day Case Surgery	1	0	0.00
	Routine Elective Surgery	15	2.1	0.09
	Emergency Medical	65	2.7	0.48
Medicine	Emergency	292	6	4.80
	Complex Emergency	27	13.5	0.99
Total		653		10.01

Source: Based on Glendon hospital admission data

Given that only whole numbers of beds can be considered within each of the service areas, the overall requirements for hospital beds, including a high dependency bed for post-operative

patients and emergency transfers, would be around 12 beds. As discussed under earlier options, no allowance for bed occupancy has been factored into the analysis at this stage.

5.4.2 Workforce requirements and development plan

The table below outlines the change in workforce requirements between this option and that of the 'Status Quo' option.

Table 19: Option 2 workforce requirements

Staff group	Post	Option 2 establishment
Clinical support services	Radiologist (remote for X-ray only)	1
Corporate services	Primary care manager	0.2
Dental	Visiting Orthodontist	1
Medical staff	Visiting Specialist - gynaecologist	1
Nursing staff	Critical Care Nurse	1
	Family Nurse Practitioner	1
	Midwife	1
	Neonatal Nurse	1
Therapies	Occupational therapist	1
Environmental services	Senior Environmental Health Officer	1
Total		10.2

Source: Ministry of Health and Social Services Salary Scales 2017/18

5.5 Option 3: Adult general surgery on-island

As shown in Figure 18, this option brings together options 1 and 2. This would see the cessation of the on-island paediatric surgery but the continuation of adult general surgery. To support this provision, the functional content of the hospital would need to include an operating theatre and access to critical care facility.

Paediatric surgery outpatient activities would be undertaken on a visiting basis with day case and elective paediatric surgery requiring an inpatient stay being transferred off-island for treatment.

Midwife led deliveries and emergency caesarean sections would be provided on-island. Women undergoing planned caesarean sections would be treated off-island. Complex emergency medical admission would be treated on-island.

Figure 18: Option 3 (general surgery on-island)

		Option 3 - Adult general surgery provided on a permanent on-island basis. Paediatric surgery off-island.	
		On-island	Off-island
Surgery	Routine Elective		
	Emergency		
Maternity	Midwifery Led Births		
	Caesarean Sections (planned)		
	Caesarean Sections (emergency)		
Paediatrics	Day Case Surgery		
	Routine Elective Surgery		
	Emergency		
Medicine	Complex Emergency		
Supporting Clinical Services	Anaesthetics		
	Critical Care		
Obstetrics/Gynaecology	Visiting service		

5.5.1 Demand and capacity requirements

An analysis has been undertaken of the medical and surgical admission data, to understand the projected activity for each service under Option 3. The 2025 projected breakdown is used as the reference point, assuming the average length of stay (ALOS) remains constant.

Table 20: Hospital activity by service under Option 3

Service	Category	Option 3 projected cases (2025)	Average length of stay (days)	Beds (2025)
Surgery	Day Case Surgery	17	0	0.00
	Admission with procedure	54	8	1.19
	Other Admissions			
	Admission with procedure (ward)	54	5.6	0.83
	Admission without procedure	54	5.6	0.83
Maternity	Midwifery Led Births	21	2.8	0.16
	Midwife & doctor delivery	12	2.8	0.09
	Caesarean Sections (planned)	0	4.6	0.00
	Caesarean Sections (emergency)	4	5	0.06
	No delivery/ surgical admission	22	5.2	0.32
Paediatrics	Day Case Surgery	0	0	0.00
	Routine Elective Surgery	0	2.1	0.00
	Emergency Medical	65	2.7	0.48
Medicine	Emergency	292	6	4.80
	Complex Emergency	27	13.5	0.99
Total		622		9.74

Source: Based on Glendon hospital admission data

Given that only whole numbers of beds can be considered within each of the service areas, the overall requirements for hospital beds, including a high dependency bed for post-operative

patients and emergency transfers, would be around 11 beds. As discussed under earlier options, no allowance for bed occupancy has been factored into the analysis at this stage.

5.5.2 Workforce requirements and development plan

The table below outlines the change in workforce requirements between this option and that of the 'Status Quo' option.

Table 21: Option 3

Staff group	Post	Option 3 establishment
Clinical support services	Radiologist (remote for X-ray only)	1
Corporate services	Primary care manager	0.2
Dental	Visiting Orthodontist	1
Nursing staff	Critical Care Nurse	1
	Family Nurse Practitioner	1
	Midwife	1
	Neonatal Nurse	1
Therapies	Occupational therapist	1
Environmental services	Senior Environmental Health Officer	1
Total		8.2

Source: Ministry of Health and Social Services Salary Scales 2017/18

5.6 Option 4: Visiting paediatrician only

This option assumes the continuation of the adult on-island general surgery service. As with option 3, planned caesarean sections would be transferred off-island for care under an obstetrician/gynaecologist. However, with only a visiting paediatrician for outpatient consultations, the continuation of emergency caesarean sections would need to cease and any expected complex birth which may result as an emergency caesarean section would also be transferred off-island well in advance of their delivery date.

In addition, it is assumed that without the on-site presence of the paediatrician, emergency medical admissions of children and all paediatric surgery would cease and require to be transferred off-island.

The continuation of the adult general surgery service would necessitate the requirement for an operating theatre and critical care facility.

The profile of secondary care clinical services is shown in Figure 19 below.

Figure 19: Option 4 (visiting paediatrician only)

		Option 4 - General surgery on-island but only visiting paediatrician for medical outpatients.	
		On-island	Off-island
Surgery	Routine Elective		
	Emergency		
Maternity	Midwifery Led Births		
	Caesarean Sections (planned)		
	Caesarean Sections (emergency)		
Paediatrics	Day Case Surgery		
	Routine Elective Surgery		
	Emergency		
Medicine	Complex Emergency		
Supporting Clinical Services	Anaesthetics		
	Critical Care		
Obstetrics/Gynaecology	Visiting service		

5.6.1 Demand and capacity requirements

An analysis has been undertaken of the medical and surgical admission data, to understand the projected activity for each service under Option 4. The 2025 projected breakdown is used as the reference point, assuming the average length of stay (ALOS) remains constant.

Table 22: Hospital activity by service under Option 4

Service	Category	Option 4 projected cases (2025)	Average length of stay (days)	Beds (2025)
Surgery	Day Case Surgery	17	0	0.00
	Admission with procedure	54	8	1.19
	Other admissions			
	Admission with procedure (ward)	54	5.6	0.83
	Admission without procedure	54	5.6	0.83
Maternity	Midwifery Led Births	21	2.8	0.16
	Midwife & doctor delivery	12	2.8	0.09
	Caesarean Sections (planned)	0	4.6	0.00
	Caesarean Sections (emergency)	0	5	0.00
	No delivery/ surgical admission	0	5.2	0.00
Paediatrics	Day Case Surgery	0	0	0.00
	Routine Elective Surgery	0	2.1	0.00
	Emergency Medical	0	2.7	0.00
Medicine	Emergency	292	6	4.80
	Complex Emergency	27	13.5	0.99
Total		531		8.88

Source: Based on Glendon hospital admission data

Given that only whole numbers of beds can be considered within each of the service areas, the overall requirements for hospital beds, including a high dependency bed for post-operative

patients and emergency transfers, would be around 10 beds. As discussed under earlier options, no allowance for bed occupancy has been factored into the analysis at this stage.

5.6.2 Workforce requirements and development plan

The table below outlines the change in workforce requirements between this option and that of the 'Status Quo' option.

Table 23: Option 4

Staff group	Post	Option 4 establishment
Clinical support services	Radiologist (remote for X-ray only)	1
Corporate services	Primary care manager	0.2
Dental	Visiting Orthodontist	1
Medical staff	Paediatrician	-1
	Visiting paediatrician	1
	Visiting Specialist - gynaecologist	-1
Nursing staff	Critical Care Nurse	1
	Family Nurse Practitioner	1
	Midwife	1
	Neonatal Nurse	1
Therapies	Occupational therapist	1
Environmental services	Senior Environmental Health Officer	1
Total		7.2

Source: Ministry of Health and Social Services Salary Scales 2017/18

5.7 Option 5: General surgery provided on a visiting basis

This option would see the cessation of the on-island general surgery inpatient service and in its place would be a visiting general surgery service to undertake outpatients and day cases. This would be supported by a visiting anaesthetist. The functional content of the hospital would include a small day case theatre but there would be no need for critical care facilities.

Since, under this option, there would be no on-site presence of a permanent general surgeon, only midwife led deliveries would be provided. Women undergoing planned caesarean sections would be treated off-island and any expected complex birth which may result as an emergency caesarean section would also be transferred off-island well in advance of their delivery date. Furthermore, any complex emergency medical admission would be transferred off-island.

As with general surgery, paediatric surgery day case and outpatient activities would be undertaken on a visiting basis with elective paediatric surgery requiring an inpatient stay being transferred off-island for treatment.

This is illustrated in Figure 20 below.

Under this option, there would seem little merit in considering a radiology sub-option in which advanced diagnostics, including CT, are provided on-island.

Figure 20: Option 5 (visiting general surgery service)

		Option 5 - General Surgery provided on visiting basis. Complex emergency medical admissions off-island	
		On-island	Off-island
Surgery	Routine Elective		
	Emergency		
Maternity	Midwifery Led Births		
	Caesarean Sections (planned)		
	Caesarean Sections (emergency)		
Paediatrics	Day Case Surgery	Visiting	
	Routine Elective Surgery		
	Emergency		
Medicine	Complex Emergency		
Supporting Clinical Services	Anaesthetics	Visiting	
	Critical Care		
Obstetrics/Gynaecology	Visiting service		

5.7.1 Demand and capacity requirements

An analysis has been undertaken of the medical and surgical admission data, to understand the projected activity for each service under Option 5. The 2025 projected breakdown is used as the reference point, assuming the average length of stay (ALOS) remains constant.

Table 24: Hospital activity by service under Option 5

Service	Category	Option 5 projected cases (2025)	Average length of stay (days)	Beds (2025)
Surgery	Day Case Surgery	17	0	0.00
	Admission with procedure	0	8	0.00
	Other Admissions			
	Admission with procedure (ward)	0	5.6	0.00
	Admission without procedure	0	5.6	0.00
Maternity	Midwifery Led Births	21	2.8	0.16
	Midwife & doctor delivery	0	2.8	0.00
	Caesarean Sections (planned)	0	4.6	0.00
	Caesarean Sections (emergency)	0	5	0.00
	No delivery/ surgical admission	0	5.2	0.00
Paediatrics	Day Case Surgery	0	0	0.00
	Routine Elective Surgery	0	2.1	0.00
	Emergency Medical	0	2.7	0.00
Medicine	Emergency	292	6	4.80
	Complex Emergency	0	13.5	0.00
Total		330		4.96

Source: Based on Glendon hospital admission data

Given that only whole numbers of beds can be considered within each of the service areas, the overall requirements for hospital beds, including a high dependency bed for post-operative patients and emergency transfers, would be around 5 beds. As discussed under earlier options, no allowance for bed occupancy has been factored into the analysis at this stage.

5.7.2 Workforce requirements and development plan

The table below outlines the change in workforce requirements between this option and that of the 'Status Quo' option.

Table 25: Option 5

Staff group	Post	Option 5 establishment
Clinical support services	Radiologist (remote for X-ray only)	1
Corporate services	Primary care manager	0.2
Dental	Visiting Orthodontist	1
Facilities	Cook	-1
	Cook's assistant	-1
	Maid	-5
	Washer	-1
Medical staff	General Surgeon	-1
	Visiting general surgeon	1
	Visiting Specialist - gynaecologist	-1
Nursing staff	Critical Care Nurse	1
	Family Nurse Practitioner	1
	Midwife	1
	Neonatal Nurse	1
Therapies	Occupational therapist	1
Environmental services	Senior Environmental Health Officer	1
Total		-0.8

Source: Ministry of Health and Social Services Salary Scales 2017/18

The following sections appraise these options, and the sub-options within these.

6 Options Appraisal

To assess the relative benefits between each of these secondary care options, an options appraisal can be undertaken whereby each option is appraised against a set of weighted criteria. The total benefits scores can then be compared to determine the optimum option in terms of qualitative benefits.

6.1 Hospital options appraisal

The criteria selected to assess the options has been developed to take account of:

- Maximising clinical and patient safety.
- Providing accessible services.
- Achieving deliverability.
- Maintaining longer term sustainability.
- Montserrat's ability to respond to a life-threatening emergency.
- Maximising the use of resources both on-island and off.

Out of a total weighting of 100%, the weighting of each criteria has been determined. This assumes:

- 35% weighting for safety.
- 10% for accessibility.
- 25% for deliverability.
- 10% for long term sustainability.
- 15% for emergency preparedness.
- 5% for maximising the use of resources.

For each option, a score out of a maximum of 10 has been awarded to each of the criteria. The higher the score, the better that option meets the aims of that criteria. The results of this scoring are shown in the matrix below in Table 26.

Table 26: Options scoring

Criteria	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5
Maximising clinical and patient safety	6	7	8	8	8	9
Providing accessible services	8	8	7	6	6	5
Achieving deliverability	8	8	7	6	6	6
Maintaining longer term sustainability	5	5	7	7	8	9
Emergency preparedness	7	7	8	7	6	4
Maximising the use of resources	6	6	6	5	5	8

Source: Option 1 - General Surgery (permanent on-island basis). Includes paediatric surgery.
Option 2 - General surgery on-island and with regular visiting Obstetrician/ Gynaecologist.
Option 3 - Adult general surgery provided on a permanent on-island basis. Paediatric surgery off-island.
Option 4 - General surgery on-island but only visiting paediatrician for medical outpatients.
Option 5 - General Surgery provided on visiting basis. Complex emergency medical admissions off-island.

Applying the weightings to these scores then derives an overall total weighted score for each option:

- Status Quo: 6.75
- Option 1: 7.10
- Option 2: 7.45
- Option 3: 6.90
- Option 4: 6.85
- Option 5: 7.05

Overall, the highest scored option is Option 2. Option 2 sees a strengthening of a visiting obstetrician/gynaecologist presence on-island to support the continuation of local obstetric deliveries but the withdrawal of paediatric day case and inpatient surgery on-island. However, given that the current general surgeon is trained in paediatrics, the situation could remain as in Option 1 with the continuation of minor paediatric surgical procedures. If the situation changed or if a locum is used to provide cover, then only general surgery on adults should be performed on island.

A sensitivity analysis based on a change to the weightings applied to each criteria has been applied to assess any potential change in the preferred option. Increasing the weights for clinical safety, accessibility of the services and longer-term sustainability by an additional 5% and reducing all other criteria weights by 5% showed that option 2 remains the preferred option. Furthermore, applying equal weights across the 6 criteria or even reducing originally higher weighted criteria by a further 10% and increasing originally higher weighted criteria by 10%, still showed that option 2 remains the preferred option.

6.2 Primary care and clinical support services options appraisal

6.2.1 Primary care

Within primary care, the options for change include:

- Maintaining existing access to four clinic sites.
- Reduction to three clinic sites: Salem, Cudjoe Head and St John's
- Reduction to three clinic sites: Cudjoe Head, St John's and one co-located at the new hospital site.

It is assumed that much of what currently presents at the Casualty department should more appropriately be seen in clinic by the doctor and/or clinic nurse. By 2025, the volume of clinic attendances presenting to see the doctor would be 9,000 per annum.

Under the assumption that there are three clinics, this would result in approximately 3,000 attendances per annum, representing an average of 12 attendances per day. Under a four clinic scenario, the average daily attendance per clinic would be 9 attendances (although it is recognised that St John's clinic is significantly busier than the other clinics).

In terms of future staffing, it is assumed that there would be three medical staff who could act as DMOs. In terms of current staffing, this would mean the casualty officer would need to act up as DMO and vice versa for the DMO posts.

The table below (Table 27) provides an appraisal of the potential options against a set of defined criteria.

Table 27: Primary care options weighting and scoring

	Weighting	Existing 4 clinics	Three clinic sites	Three clinic sites (one adjacent to new hospital facility)
Access to DMO	40%	5	9	9
Access to clinic services	20%	8	6	6
Ability to cover Casualty Department (for emergencies)	40%	5	6	8
Overall weighted score		5.6	7.2	8.0

Applying the weighting to the scores identifies a preferred option which would see the provision of three clinics, one of which would be adjacent to the new hospital facility to allow DMO cover of the Casualty department when a true emergency presents.

Depending on the location of the new hospital compared to the existing clinic sites, it may be that a combination of the 3 existing sites achieves an equal score with the three clinic sites (one adjacent to the new hospital facility) in terms of its ability to cover the causality department.

In reducing the number of clinics, non-emergency patient transfer services may need to be considered for those that are elderly or do not have alternative travel arrangements available.

6.2.2 Clinical support services

In relation to radiology services, the sub-options to consider are:

- On-island radiology services for x-ray, ultrasound and ECG with off-island access to mammography, CT and MRI
- On-island radiology services for x-ray, ultrasound, ECG, CT and mammography with off-island access to MRI. CT and mammography on-island could either be provided through a public private partnership or on a private sector basis.

Table 28: Radiology options weighting and scoring

	Weighting	On-island radiology services for x-ray, ultrasound and ECG with off-island access to mammography, CT and MRI	On-island radiology services for x-ray, ultrasound, ECG, CT and mammography with off-island access to MRI
Patient safety	40%	6	8
Access to services	30%	6	8
Maximise use of resources	30%	8	5
Overall weighted score		6.6	7.1

Overall, on the assumption that a private sector provider, such as the Belmont clinic, wish to take the risk in terms of establishing a mammography and possible eventually CT services on-island, then this would derive the preferred option. Without such investment by the private sector, the volume of CT and mammography scan per annum could not justify investment by the Government of Monserrat in such machines and access to specialist services would continue to be off-island.

For pathology, the potential options are:

- On-island hospital and private laboratory (as is)

- On-island single private sector laboratory service.

Given that the current in-house service is well-staffed with little current issue in relation to recruitment and retention, in terms of impact on patients and service delivery, there is very little difference between the options. The difference is largely attributable to financial impacts; either as:

- The cost of providing the service in-house and the cost of external support, where required; or
- The cost of paying for a privately provided service.

This will be considered further in the following section.

In addition to imaging and laboratory, a further clinical support service to be considered is that of telemedicine service. This could support the imaging and laboratory services through interpretation of scans and tests but also in developing closer collaboration between on-island medical staff with off-island clinicians; particularly those supporting the visiting service provision.

6.2.3 Conclusion

Through an options development and appraisal process, the preferred, based on non-financial benefits criteria, has indicated the following service configuration:

- As per Option 2, adult medical and surgical services will continue to be provided on-island, as would community based antenatal and postnatal care, and paediatric outpatients. Caesarean sections will continue to be provided on-island through a visiting obstetrician/ gynaecology service.
- As per Option 2, all paediatric surgery provided off island. Major trauma, complex elective general surgery and complex births will continue to be through off-island referrals. Given the dual training of the current general surgeon, minor paediatric surgery could be continued.
- Three clinic sites, at Cudjoe Head, St John's and one co-located at the new hospital site. This would allow DMO cover of the casualty department when a true emergency presents.
- Additional mammography and possible eventually CT services on-island, could be delivered through a private sector provider, such as the Belmont clinic, should they agree to manage the risk of service provision.
- A pathology service which either continues to be provided 'as is' within the on-island hospital and private laboratory, or establishes an on-island single private sector laboratory service.
- A telemedicine facility to provide remote reporting and interpretation of scans and tests and support closer working between on-island and off-island medical staff.

Long term ongoing haemodialysis would not be a service that would be available and funded through the public sector due to the prohibitive costs of the service. Therefore, it is assumed under each of the options that patients in need of long term dialysis support would continue to seek treatment off-island either privately or, for those non-residents, back in their home country.

An integral part of these recommendations, is the development of a new hospital facility.

To date, we have estimated the future demand for acute hospital services at this new facility and translated this demand into occupied bed requirements under Option 2. This identified that the future level of demand would require a total of 11 beds plus one high dependency unit bed. However, this does not factor in any level of bed occupancy to provide the necessary headspace in capacity to manage the fluctuations in the profile of daily admissions. Typically, with larger hospital builds, a recommended norm is to assume that available beds are occupied for 85% of the time; thereby building in the excess capacity to meet the increased demand at peak periods of admissions. Applying this occupancy level and rounding up to whole numbers the beds

required for each service area, the overall requirements, including the high dependency bed for post-operative patients and emergency transfers, would be 15 beds.

However, concern has been raised that given the small size of the facility and the services to be provided, care needs to be taken in ensuring that this volume of beds at this level of assumed average occupancy would meet the likely fluctuations in demand.

To test this, we have applied the daily pattern of admissions and discharges seen in 2015 to the future volume of admissions estimated in 2025 to assess the extent to which a complement of 15 beds can provide the necessary accommodation through the year.

This analysis shows that at least once a fortnight, the estimated number of occasions where the future volume of admissions in 2025 would exceed 14 beds (excluding the HDU bed). Indeed, there would need to be a minimum of 18 beds to ensure that each day the likely profile of admissions could be accommodated. However, whilst this looks at the overall level of beds required in the future, it does not address the specific service areas requirements. Performing a similar analysis across the medical, surgical, maternity and paediatric admissions in the future is shown in Table 29.

Table 29: Bed requirements by service area

	Medicine	Surgery	Maternity	Paediatrics
Average	6.6	2.1	0.8	0.4
Median	6.4	2.1	0.0	0.0
Upper Quartile	7.5	3.2	1.1	1.1
Lower Quartile	5.3	1.1	0.0	0.0
Required to meet daily peaks in demand	14	8	5	4

This shows:

- An average requirement for 7 medical beds, 3 surgical beds, 1 maternity bed and 1 paediatric bed; a total of 12 beds.
- Taking the upper quartile, the requirement would be for 8 medical beds, 4 surgical beds, 2 maternity beds and 2 paediatric beds; a total of 16 beds.
- That in ensuring every admission on each day has a bed in the service area relevant to their condition, the requirement would be for 14 medical beds, 8 surgical beds, 5 maternity beds and 4 paediatric beds; a total of 31 beds.

Clearly, there is quite a variation in the scale of beds required depending on the methodology used. Planning based on the average or median would mean that at times, there would be insufficient beds to manage demand, meaning that patients are either denied access or sent overseas. However, building a hospital based on the requirements to meet all the daily peaks and ensure that each day patients are admitted into the bed complement of the specific service area would create excess capacity where, like the current situation, the average bed occupancy annually would remain at around 35%.

Therefore, a ‘best fit’ needs to be found that ensures that on most days medical and surgical patients are admitted to the appropriate ward area but which makes best use of the available capacity, looks to provide a ringfence around paediatric and maternity beds, provides resilience in times of major emergencies, and ensures longer term sustainability beyond 2025.

Figure 21 to Figure 24 below provide a breakdown of the future daily peaks in admissions at 2025[24] showing this against the total beds required to meet daily peaks in demand (the grey line) and the upper quartile profile (the orange line). A recommended bed complement within each specialty area is indicated by the yellow lines.

Figure 21: Surgical beds required for the admission profile

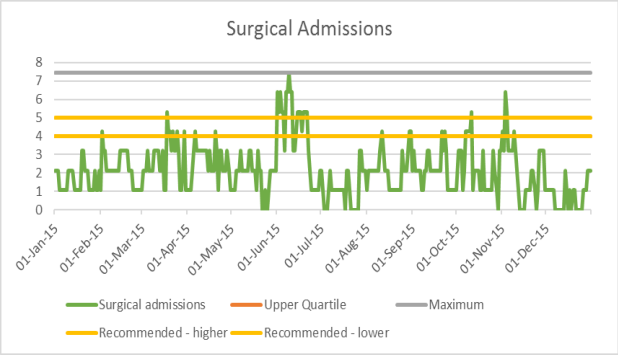
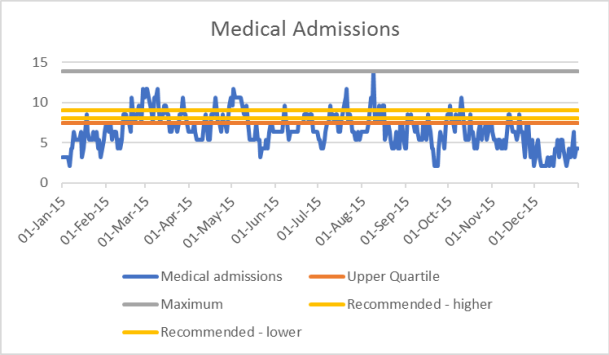


Figure 22: Medical beds required for the admission profile



Note: Grey line represents total beds required to meet daily peaks in demand, orange line represents upper quartile of beds required, yellow line represents recommended beds.

Figure 23: Paediatric beds required for the admission profile

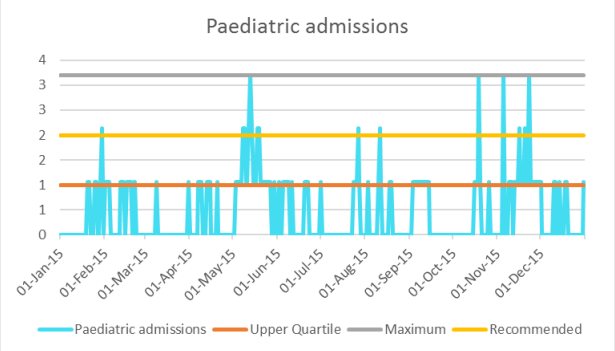
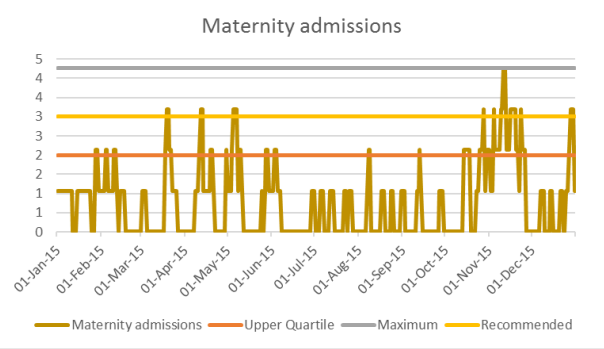


Figure 24: Maternity beds required for the admission profile



These charts demonstrate that if bed numbers are to be based at the upper quartile, there would be frequent points in time where demand would fully occupy the beds and/or exceed available beds, across all specialties.

A bed complement of 18 beds (8 medical, four surgical, three maternity and two paediatric beds plus one high dependency bed) would result in an estimated 167 occasions where patients could not admitted to the required specialty bed. If medical and surgical beds are combined and used flexibly, then the number of occasions would reduce to an estimated 71 times through the year; half of which would be medical and surgical patients who could not be admitted into the combined 12 bed complement. The remainder of the 71 occasions relate to paediatric and maternity admissions.

Alternatively, a bed complement of 20 beds (9 medical, 5 surgical, three maternity and two paediatric beds plus one high dependency bed) would result in 96 occasions where patients could not be admitted to the required specialty bed. A combined medical and surgical bed

[24] Based on future need and the daily profile of admissions observed in 2015

complement would reduce these occasions to an estimated 41 times through the year. There would only be an estimated 5 patients who could not be admitted into a medical or surgical bed through the year.

Therefore, we recommended a future bed profile of 20 beds. This provides the best position in which the majority of patients can be most appropriately treated within distinct service areas within the hospital, but recognising that there would be occasions where flexibility needs to be applied with some medical and surgical patients occupying a ward space which may not be related to their condition. In the design of the new hospital, there needs to be a degree of creativity in the design of the new hospital; providing a range of 4 bedded bays, double and single rooms.

This position would also facilitate the recommended increased presence of visiting specialists to provide surgery on-island, which would further increase admissions in particular weeks, over and above the routine and emergency medical and surgical admissions.

Whilst this estimate of 20 future beds is higher than the original forecast estimate of 15 beds, the impact on the nursing workforce required is assumed to be neutral given the suggested change in the configuration and layout of the beds from single and double occupancy rooms under the scenario of 15 beds compared to principally 4 bedded bay areas plus a smaller number of single rooms under the scenario of 20 beds.

Overall, for the new hospital, we consider that the functional content required would comprise:

Table 30: Functional content required for new hospital facility

Service/Department	Description	Functional Content
Casualty	Examination Cubicles	3
Outpatient	Consultation/Examination Room	3
Inpatients	9 medical beds arranged as 2 four bedded bays and 1 single rooms 5 surgical beds arranged as 1 four bedded bay and 1 single room 3 maternity beds arranged as 1 double occupancy room and 1 single room 2 paediatric beds within a double occupancy room	19
High Dependency	Bed	1
Theatre	Operating theatre and post-operative recovery	1
Maternity	Delivery area	1
Imaging	Digital x-ray, ultrasound and ECG. Option to accommodate private sector CT and mammography	
Therapies	Consultation/Examination rooms and gym	2 rooms and gym
Pharmacy	Dispensing, store and sterile processing	
Laboratory	Biochemistry, Microbiology, Haematology, Blood Bank. Option for private sector operation	
Ancillary facilities	Laundry, Catering, CSSD, store room	

6.3 Comparison with other similar countries

We recognise the debate that often ensues when balancing the desire to provide locally accessible hospital services versus the arguments regarding scale and protecting patient safety through a minimum critical mass of patient activity, particularly across surgical specialties. To understand the potential relative scale of the new public hospital bed provision per 1,000 people, an analysis of healthcare systems of small island economies has been undertaken.

The future profile of beds per 1,000 population on Montserrat would be around 4.0.

There are few islands with a population as small as that on Montserrat. Of those in the south Atlantic with a similar sized population, the ratio of beds per 1,000 population are St. Helena (6 beds/1000), Tristan de Cunha (7 beds/1000) and Ascension Islands (9 beds/1000). In comparison, the beds per 1,000 population for small island economies across the Caribbean, North Atlantic is shown in Table 31. The mean value across these islands is 2.06 beds per 1,000 population.

Table 31: Beds per 1,000 population across small island communities

Region	Country	Population	Public beds	Beds/1,000
Caribbean	Saint Lucia	187,700	160	0.85
Caribbean	Turks & Caicos	35,000	30	0.86
Caribbean	British Virgin	31,200	50	1.60
Caribbean	Guadeloupe	472,400	900	1.91
Caribbean	Saint Vincent and the Grenadines	109,900	211	1.92
Caribbean	Antigua and Barbuda	93,600	185	1.98
Caribbean	Grenada	107,800	239	2.22
Caribbean	Barbados	285,700	650	2.28
Caribbean	Cayman	61,500	142	2.31
Caribbean	Anguilla	15,300	36	2.35
Caribbean	St. Kitts and Nevis	56,800	164	2.89
North Atlantic	Bermuda	64,000	226	3.53
Mean				**2.06**

The disproportionately high numbers of beds on the south Atlantic islands are likely due to their geographical isolation, and therefore their limited scope for off-island referrals, rather than the healthcare demand of their residents. Montserrat is not hindered by the same isolation as these three South Atlantic islands. Moreover, Montserrat already has established healthcare links to several of the UK overseas territories and Caribbean islands listed in Table 31 that are effective and well-utilised. However, the population of Montserrat is considerably smaller than all the comparator Caribbean islands and therefore, cannot achieve the same economies of scale.

Therefore, it would seem reasonable for the ratio of beds per population on Montserrat at 4.0 to be somewhere between the South Atlantic islands and its Caribbean neighbours; given some of its shared characteristics with these two distinct economies.

7 Costing the options

7.1 Assessing the financial impact of the preferred option

Whilst this non-financial benefits appraisal process has indicated a potentially preferred option, Option 2, when combined with the financial costs to implement, the overall preferred option can be identified.

7.2 Program costing

Our costing of the baseline scenario on Montserrat (Status Quo) and the subsequent options is based on multiple sources. These mainly include the MoHSS 2016/17 budget statement and MoHSS salary scales.

The cost of each option reflects the changing service profiles as set out in previous sections. Our analysis is also based around several key assumptions, listed below:

- We have estimated the annual costs for new and uplifted visiting specialists based on the available rates for current visiting specialist posts[25]. These are included in the professional services and fees for each option.
- There are some small changes in salaries due to our understanding of recent establishment changes, as well as our estimates of salaries for those posts not listed in the salary scales.
- The increase in salaries, according to the changes in establishment under each of the options, would also create a proportionate increase in allowances and pension contributions.
- A 10% allowance for prospective cover for medical staff has been assumed to provide cover for absence, e.g. annual leave and training and development.
- An overall allowance for training and development for all qualified staff.
- The potential closure of the St. Peter's clinic would create a relatively small decrease in the cost of maintenance services for primary health care.
- Under secondary care some elements of medical supplies, food supplies, and other supplies and materials would change under each option in line with admission rates and hospital bed provision.
- We have excluded secondary health care maintenance and furniture budget lines, since it is not clear at this stage how these costs will change with the financing mechanism for the new hospital facility. For example, capital could be raised either through traditional government capital programmes or alternatively through a public private partnership (PPP) relationship whereby the facility is built, maintained, and/or operated by the private sector operator over several years before ownership reverting to the government. While under the control of the private operator, the government pay the operator an annual availability payment to cover the costs for the build, maintenance, and operation. Given the uncertainty of how the capital finance will be raised, it is therefore not clear what the annual maintenance costs would be since this would depend on the design and procurement model. It is also reasonable to assume that within 5 years, there should be no material costs incurred for equipment replacement.

The costing is first presented as a breakdown across each of the four MoHSS programmes:

- Strategic Management and Administration.

[25] Current available rates equate to XCD $5,000 for 2 days input, every 3 months (XCD $20,000 annually).

- Primary Health Care.
- Secondary Health Care.
- Environmental Health Services.

Across the options, there is no estimated change in strategic management and administration costs.

Table 32: Strategic Management and Administration Costs

Strategic Management and Administration	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5
Salaries	$486,756	$486,756	$486,756	$486,756	$486,756	$486,756
Allowances	$59,400	$59,400	$59,400	$59,400	$59,400	$59,400
Professional services and fees	$1,013,500	$1,013,500	$1,013,500	$1,013,500	$1,013,500	$1,013,500
Other Non-Pay	$115,844	$115,844	$115,844	$115,844	$115,844	$115,844
Purchase of furniture and equipment	$1,385,900	$1,385,900	$1,385,900	$1,385,900	$1,385,900	$1,385,900
Maintenance services	$222,400	$222,400	$222,400	$222,400	$222,400	$222,400
Rental	$87,000	$87,000	$87,000	$87,000	$87,000	$87,000
Travel	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Training and development	$160,000	$160,000	$160,000	$160,000	$160,000	$160,000
Total	**$3,531,800**	**$3,531,800**	**$3,531,800**	**$3,531,800**	**$3,531,800**	**$3,531,800**

Across the options, primary care costs reflect that a paediatrician will not be available on-island under option 4, as well as changes to the number of clinic sites.[26]

Table 33: Primary Health Care Costs

Primary Health Care	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5
Salaries	$1,412,773	$1,541,539	$1,541,539	$1,541,539	$1,470,139	$1,541,539
Allowances	$415,000	$452,824	$452,824	$452,824	$431,851	$452,824
Pension contributions	$34,300	$37,426	$37,426	$37,426	$35,693	$37,426
Purchase of furniture and equipment	$124,000	$124,000	$124,000	$124,000	$124,000	$124,000
Maintenance services	$65,000	$58,500	$58,500	$58,500	$58,500	$58,500
Utilities	$23,000	$20,700	$20,700	$20,700	$20,700	$20,700
Health Care Promotion	$46,000	$46,000	$46,000	$46,000	$46,000	$46,000
Professional services and fees	$154,000	$174,000	$174,000	$174,000	$174,000	$174,000
Other Non-Pay	$6,227	$6,227	$6,227	$6,227	$6,227	$6,227
Total	**$2,280,300**	**$2,474,286**	**$2,474,286**	**$2,474,286**	**$2,370,768**	**$2,474,286**

Secondary health care costs reflect the different service configurations described in earlier chapters of this report.

[26] Under all options, it has been assumed that St. Peter's clinic will no longer be provided. Under the preferred primary care option, 'three clinic sites (one adjacent to new hospital facility)', two existing sites may close, with a new clinic developed on the new hospital site. In reality, the maintenance costs of this clinic are unknown given the financing mechanism.

Table 34: Secondary Health Care Costs

Secondary Health Care	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5[27]
Salaries	$4,414,909	$4,645,372	$4,645,372	$4,645,372	$4,645,372	$4,380,100
Allowances	$622,900	$650,015	$650,015	$650,015	$650,015	$613,756
Pension contributions	$76,000	$79,308	$79,308	$79,308	$79,308	$74,884
Laboratory	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Pharmacy	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000
Oxygen	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
Other medical supplies	$587,000	$573,591	$573,591	$560,183	$476,858	$296,800
Office supplies	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000
Food supplies	$520,000	$514,299	$517,016	$511,936	$497,376	$394,017
Other supplies and materials	$434,000	$424,086	$424,086	$414,173	$352,566	$219,440
Other expenses	$31,000	$31,000	$31,000	$31,000	$31,000	$31,000
Professional services and fees	$254,000	$254,000	$274,000	$254,000	$254,000	$254,000
Utilities	$72,000	$90,000	$90,000	$90,000	$90,000	$90,000
Travel	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Other Non-Pay	$114,692	$114,692	$114,692	$114,692	$114,692	$114,692
Total	**$7,816,501**	**$8,072,425**	**$8,095,142**	**$8,046,740**	**$7,887,248**	**$7,163,438**

Across the options, there is no change in the environmental health services costs.

Table 35: Environmental Health Services Costs

Environmental Health Services	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5
Salaries	$372,708	$419,708	$419,708	$419,708	$419,708	$419,708
Allowances	$43,000	$48,422	$48,422	$48,422	$48,422	$48,422
Pension contributions	$20,400	$22,973	$22,973	$22,973	$22,973	$22,973
Other Non-Pay	$61,192	$61,192	$61,192	$61,192	$61,192	$61,192
Utilities	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000
Travel	$28,800	$28,800	$28,800	$28,800	$28,800	$28,800
Professional services and fees	$933,000	$933,000	$933,000	$933,000	$933,000	$933,000
Total	**$1,514,100**	**$1,569,095**	**$1,569,095**	**$1,569,095**	**$1,569,095**	**$1,569,095**

7.3 Off-island costing

Our off-island costing of the baseline scenario (Status Quo) and the subsequent options are based on multiple sources. We have primarily used off-island provider service costs (where available), acquired from our stakeholder consultation on Antigua.

This analysis is based on a few assumptions:

- An estimate of the number of surgical admissions, based on the average Caribbean rate of surgical procedures per 1,000 population. The average cost of the surgical procedure has been estimated at XCD $10,000, reflecting the range and complexity of conditions.

[27] It is assumed that the costs for Pathology and Pharmacy remain constant given the range of casualty, outpatient and inpatient services and the PPS contractual arrangements within Pharmacy.

- An estimate of the number of non-surgical admissions, based on an extrapolation of those receiving medical assistance. The average cost of these admissions has been estimated at XCD $2,000.
- An estimate of the number of consultations, based on each off-island admission currently being associated with a consultation, the average cost of which is XCD $250. With provision of additional visiting specialists on-island across the options, there is no assumption of additional consultations occurring off-island.
- The future requirement for specialist diagnostics (CT, MRI, and others). These have been costed using the Belmont clinic price list.

Table 36: Off-island Provider Costs

Off island	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5
Surgical admissions	$1,166,508	$1,315,670	$1,165,670	$1,464,832	$1,518,105	$2,599,529
Non-surgical admissions	$106,000	$106,000	$106,000	$106,000	$280,733	$465,054
Mental health admissions	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Consultations	$55,864	$55,864	$55,864	$55,864	$55,864	$55,864
Radiology - CT	$66,000	$66,000	$66,000	$66,000	$66,000	$66,000
Radiology - MRI	$86,000	$86,000	$86,000	$86,000	$86,000	$86,000
Radiology - others	$9,000	$9,000	$9,000	$9,000	$9,000	$9,000
Total	**$1,589,372**	**$1,738,534**	**$1,588,534**	**$1,887,696**	**$2,115,701**	**$3,381,447**

Source: MM. Surgical admissions includes caesarean activity.

The above activity excludes the costs of specialist tertiary care accessed overseas but not paid for by the Government of Montserrat including, complex cancer surgery and radiotherapy, transplantations, long term haemodialysis and chemotherapy. The notional cost for patients requiring access to these services has been estimated at XCD $1,4 million per annum. For some patients, access to these services is free under the UK quota system.

7.4 Overall costing

The overall cost for each of the options is shown in Table 37 below. For reference, the difference between our final cost for the Status Quo option (as a baseline) and the current MoHSS budget is predominantly due to the following factors:

- Exclusion of Social Services budget
- Inclusion of costs for estimated off-island healthcare demand
- Some small changes in salaries due to recent establishment changes, as well as estimates of salaries for posts not listed in the current salary scales.
- Exclusion of Secondary Health Care maintenance and furniture budget lines (see section 7.1)

Table 37: Overall costing

Programme	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5
Strategic Management and Administration	$3,531,800	$3,531,800	$3,531,800	$3,531,800	$3,531,800	$3,531,800
Primary Health Care	$2,280,300	$2,474,286	$2,474,286	$2,474,286	$2,370,768	$2,474,286
Environmental Health Services	$1,514,100	$1,569,095	$1,569,095	$1,569,095	$1,569,095	$1,569,095
Secondary Health Care	$7,816,501	$8,072,425	$8,095,142	$8,046,740	$7,887,248	$7,163,438

Programme	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5
Off-island	$1,589,372	$1,738,534	$1,588,534	$1,887,696	$2,115,701	$3,381,447
Total	$16,732,073	$17,386,140	$17,258,857	$17,520,271	$17,474,612	$18,120,067
Difference		**$654,067**	**$526,784**	**$788,198**	**$742,539**	**$1,387,993**

In addition to the costs of treatment and care, there will be costs associated with travel. Based on an average cost of a return flight from Montserrat to Antigua of XCD $600, plus an allowance for medical evacuations, the overall travel costs under each option are shown below in Table 38.

Table 38: Flights

Flights	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5
Total	**$323,064**	**$332,014**	**$323,014**	**$341,603**	**$396,579**	**$516,761**

7.5 Conclusion

The analysis above has estimated the cost of the Status Quo option at around XCD $16,700,000. Across the options, the overall cost of providing the services either on or off-island is higher. However, between Options 1 and 5, there is estimated to be only a difference of XCD $700,000. Even combining these costs with the additional costs incurred for travel off-island, the differential between the do nothing and Options 1 to 5 is between XCD $600,000 and XCD $1,500,000.

Combining this with the non-financial benefits appraisal undertaken for secondary care services, the overall preferred option for the new hospital facility is Option 2 which was the best ranked non-financially and scored second lowest on the options. This is shown in Table 39 below.

Table 39: Overall Options Appraisal

	Status Quo	Option 1	Option 2	Option 3	Option 4	Option 5
Costs	$17,055,137	$17,718,154	$17,581,871	$17,861,874	$17,871,191	$18,636,828
Non-financial scores (weighted)	6.8	7	7.3	6.6	6.6	7
Cost per score	**$2,508,108**	**$2,531,165**	**$2,408,475**	**$2,706,345**	**$2,707,756**	**$2,662,404**

This excludes the costs of specialist tertiary care off-island (cancer, radiotherapy, transplantations, haemodialysis etc.) provided off island but not funded by the Government of Montserrat, estimated at XCD $1.4 million annually. Including these costs, then the overall total cost of service provision under Option 2 is estimated at XCD $19 million annually.[28]

This also excludes the capital costs associated with hospital and clinic sites, equipment and vehicle maintenance. The current allocation by the MoHSS is XCD $458,000. Until, such time as the new hospital is operational, this allowance should be continued. Therefore, the overall total cost of the service at XCD $19.5 million. Once the new hospital is built and becomes operational, there will be ongoing costs in maintaining the new building. Understanding the maintenance costs of this in the future will be influenced by the scale of the site and the materials used for its construction and are, therefore, not known at this stage.

Under the sub-options for clinical support services:

- If pathology services were outsourced to the private sector, either independently or through a public private partnership, the cost of the service is likely to increase over and above the current costs associated with operating this service. Whilst the additional cost

[28] This is the total of XCD $17.2 million plus XCD $0.4 million for flights and XCD $1.4 million for specialist tertiary services.

cannot be known for sure, based on a cost differential of XCD $5 per test between the public sector and the private sector laboratory, an increase of 33%, the overall cost of procuring services from a private laboratory could cost the MoHSS an additional XCD $130,000 per annum.

- If CT scanning were to be provided on-island through a private sector operator, there would be a saving in flight costs but unlikely to be in any saving in the service costs i.e. a potential saving of XCD $30,000.

Finally, over and above these operating costs and the capital cost of the new hospital build and its associated equipment needs, there would also be a cost incurred with the installation of a new hospital information system. Additional equipment may need to be purchased for those overseas visiting specialists providing treatment on-island.

Outside of the healthcare system, there are also likely to be future additional costs incurred for the provision is social care, given the aging population and the increased incidence of mental health conditions. Current occupancy at both Margetson and Golden Years is around 50%, so potentially there is scope to provide additional care without additional infrastructure costs. However operational costs would increase with an increase in patient numbers, and some refurbishment of both sites might be necessary.

7.6 Analysis of Caribbean pay scales

Through staff engagement and consultation, the competitiveness of current salary scales was highlighted as a disincentive of working on Montserrat.

To understand this better, we have conducted an analysis to explore whether Montserrat MoHSS salaries are in line with general rates across other Caribbean islands. The analysis is based on data from the most recent available Estimates of Revenue and Expenditure for these countries. Our findings are presented in Table 40.

Table 40: Caribbean pay scales (XCD $)

Post	St. Kitts Nevis	Antigua	Grenada	St. Lucia	Average	Montserrat
Community Nurse	$45,000	$40,000	$30,000	$54,000	**$42,250**	$44,000
Community Health Aide	$25,000	$24,000	$20,000	$17,000	**$21,500**	$20,000
Staff nurse	$45,000	$40,000	$37,000	$42,000	**$41,000**	$45,000
Registered Nurse	$36,360	$33,000	$30,000	$33,120	**$33,120**	$37,000
Nursing Assistant	$25,000	$30,000	$20,000	$30,000	**$26,250**	$29,000
District Medical Officer	$68,000	$54,000	$50,000	$66,000	**$59,500**	$75,000
Anaesthetist	$83,220	$86,000	$71,000	$75,000	**$78,805**	$75,000
General Surgeon	$83,220	$86,000	$71,000	$75,000	**$78,805**	$82,800
Specialist physicians	$83,220	$86,000	$71,000	$74,000	**$78,555**	$75,000

Source: MM. (Average figures were also broadly in line with Turks and Caicos, and Cayman Islands, for which not all salaries were available)

This shows that Montserrat rates of pay are broadly in line with those of other Caribbean islands, and as such represent competitive rates of pay.[29] This analysis does not support an increase in current salary scales. However, there may be discrepancies between Montserrat and these countries around the allowances allocated to cover out-of-hours working, travel, uniform etc.

[29] The cost of living across St Lucia, Grenada. St Kitts & Nevis and Antigua are broadly similar.

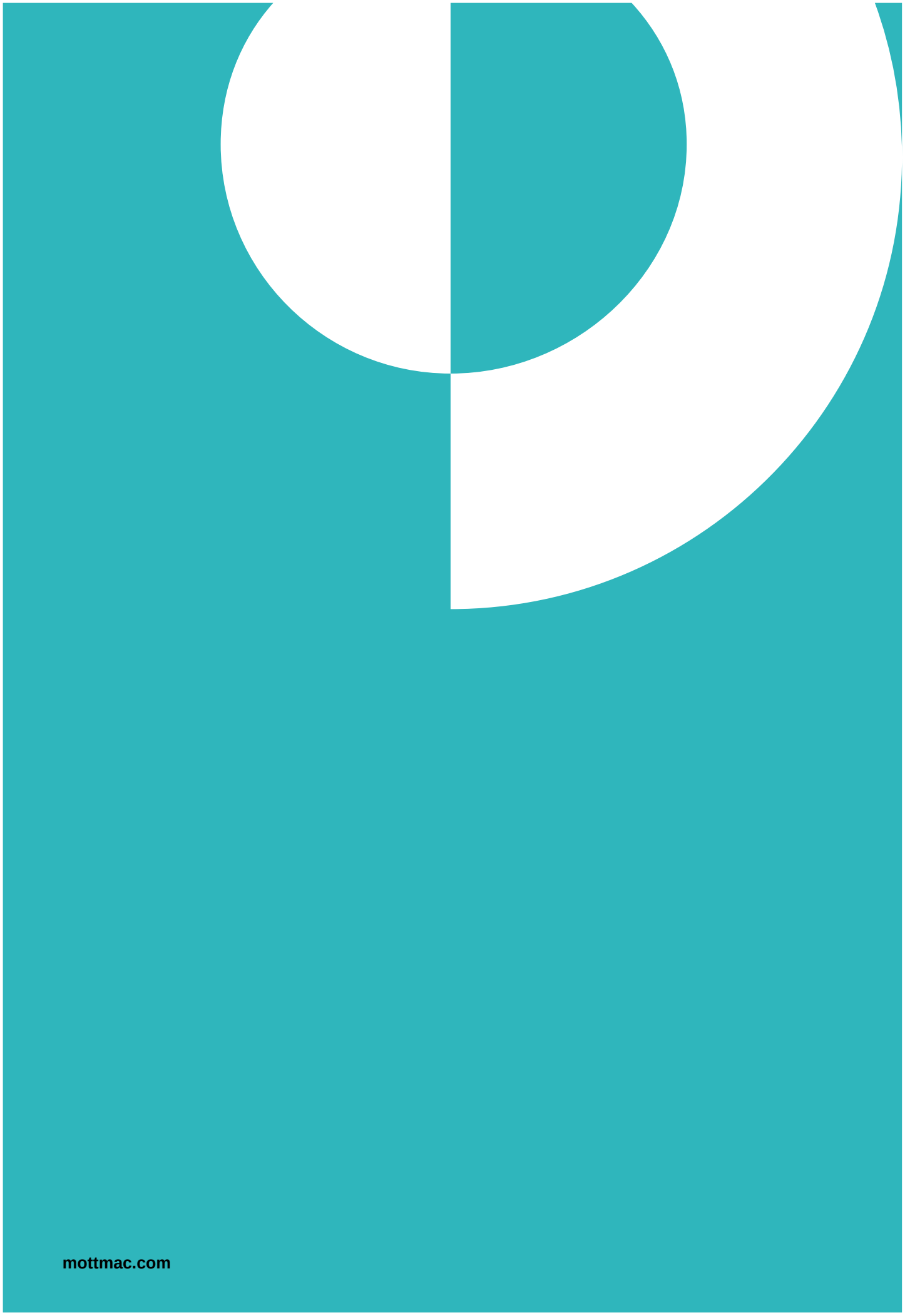
Whilst permanent staff salaries are in line with other Caribbean islands, the salaries in relation to locum staff are likely to be significantly higher given the short-term nature of the contract and the ability to attract these staff to Montserrat. In addition, payments for travel and expenses may need to be paid.

8 Action Plan

The outcome of the Health System and Financing Review has identified recommendations to improve the quality and equity of access to healthcare services both on Montserrat and off-island. Implementing these recommendations will require time and attention. Some of these recommendations can more easily be realised than others. The actions that can be undertaken using existing Ministry of Health and Social Services (MoHSS) staff, under the management and monitoring of a Steering Committee, are the focus of this report. The actions which will require additional dedicated and technical capacity for their delivery from external sources, are the focus of a separate report on external assistance requirements.

Area	Action	2017 Q4	2018 Q1	Q2	Q3	Q4	2019 Q1	Q2	Q3	Q4
Service development										
Prevention and health promotion	Restructuring of existing resources into a Public Health Unit									
	Improved coordination of funding into prevention and health promotion									
	Greater collaboration between the health and education sectors									
	• Discussions around capacity and partnerships									
	• Finalisation of plans									
Primary care	Job specification and recruitment to a Director of Primary Care									
	Consolidation of services onto fewer clinic sites									
	• Decision around service offer at 3 sites									
	• Mobilisation plan including redeployment of staff									
	Appointment of the DMO role									
	Introduction of a patient record system									
	• Development of a business case for the scale and scope of services									
	• Procurement of a contractor									
	• Installation									
Dentistry	Re-establishment of the visiting orthodontist									
	Development of a pool of locums									
	Improved procurement service									

Area	Action	2017 Q4	2018 Q1	Q2	Q3	Q4	2019 Q1	Q2	Q3	Q4
	Introduction of a patient record system									
Environmental services	Appointment of additional staffing to vacant posts									
Mental Health	Development of secure facilities for short term rehabilitation									
	Improved in-reach into schools									
	Development of plan and recruitment for occupational therapy									
	Review and implement policy for off-island referral system									
Secondary care	Increased visiting specialists and development of a pool of locums									
	• Identify individuals									
	• Develop contracts for employment									
	Establish contracts with a select number of off-island providers									
	• Identify and have discussions with potential providers									
	• Development and joint signing of contracts/ MOUs									
	Improved access to radiology services									
	• Hold internal discussions about private sector provision on-island									
	• Discussion with potential private sector partners									
	• Development of a business case									
	• Procurement									
	• Finalisation of partnership									
	Improved awareness regarding the use of public and private pharmacies									
	• Write communications strategy									
	• Implementation									
Hospital Development										
Business case	Development of a business case									
Design	Architectural support to design the new hospital build									
Construction of building	Procurement of a construction company									
Equipment	Procurement of equipment									
Certification	Independent certification									
Project Management	Support across all phases									



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Health Financing Strategy

Final Report

3 November 2017

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Health Financing Strategy

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Summary of key points

This document describes how health care in Montserrat is currently financed and makes recommendations for the future. This is important because health financing affects not only the amount of money available for health services, but also sustainability, viability, equity and efficiency. Both the Government and DFID would wish to see a move towards sustainable health financing, both in terms of the health financing mechanism and in terms of enhanced efforts about the prevention/containment of non-communicable diseases.

This report should be read in conjunction with the 'Health Service Options and Costings' report which describes a package of changes: strengthening the co-ordination and delivery of health promotion and prevention services; integrating and consolidating primary care services within fewer clinic sites; and a new 20 bed hospital.

Health financing in Montserrat: the current system

The sources of health spending in Montserrat are currently:

- Government income (from taxation)
- Financial Aid (61% of the total recurrent budget and 50-60% of the capital budget in 2016-17)
- User fees
- Private health insurance.

The first three sources (which account for the vast majority of all spending) are pooled and then allocated between sectors as part of the national budget. The recurrent budget of MoHSS in 2016/17 was XCD $21.3 million (around US $7.8 million). This is around 18% of the total government recurrent expenditure budget, or 13% for health excluding social services. The global average for health spending as a percentage of total government spending is 15.5%.

Assuming that the current proportion and allocation of Treasury funds to the MoHSS remains broadly similar, but would grow in line with changes in the population, the future estimated allocation to the MoHSS in 2025 would be XCD $22.7 million.[1] If the budget lines for Social Services and the capital funding for equipment and maintenance are excluded from this estimated budget, then the future allocation of operating costs for healthcare service delivery could be approximated at around XCD $13.5 million.

The Public Health Act sets out fee rates. These fees differ for different population cohorts, plus there is an extensive list of exemptions covering about 40% of the population.

Around XCD $400,000 was collected in user fees in 2015. Only 50% of total invoices for secondary care admissions were actually paid.

A Medical Assistance scheme pays on a case-by-case basis for patients who cannot afford their care: In 2016, there were around 100 cases of overseas referrals which received financial assistance, totalling approximately XCD $620,000.

As at 2011, 21% of the population of Montserrat were covered by private health insurance through their employer. SAGICOR covered 993 people, mostly civil servants and their families (65% employees and 35% dependents); CLICO covered 29 people. For SAGICOR, the Government of Montserrat pays monthly premiums for employees (XCD $70.12) and members pay XCD $92.48 to add dependents who qualify.

[1] Inflation has not been considered since financial aid, taxable revenues and costs would increase at similar rates.

Key points about the current health financing system are:

- User fees do not raise much money (less than 2% of government spending on health) and the current user fee collection process is ineffective.
- User fees are inequitable in that a number of poor people are not exempt from fees. Of these, some will probably pay whilst others get away with non-payment.
- The fees system is costly in terms of administration.
- It is likely that some people are going without essential overseas treatment because of the cost of care or they are going into debt to pay for the treatment. Medically-caused debt is globally recognised as a barrier to lifting people out of poverty.
- The civil service SAGICOR scheme covers a relatively narrow range of services that are required relatively infrequently, given that in practice it is used mostly to cover off-island care.
- SAGICOR does not need to cover patients with pre-existing medical conditions ("cherry-picking").
- Discrepancies in the definition of exemption categories - essential government workers are exempt from paying for services but also have insurance cover through the government scheme – means that the government is paying into a scheme for little return for these employees.
- The medical assistance scheme is currently Montserrat's mechanism for dealing with cases where nationals cannot afford to pay for the services they need.

An Essential Package of Health Services for Montserrat

An essential minimum package of care describes what services the government will provide on-island and fund off-island. It is recommended that the package for Montserrat include (see full report for the complete list):

- Family health: antenatal, delivery and new-born care, post-natal, family planning, child health, immunisation
- Communicable diseases
- Primary and secondary prevention of non-communicable diseases
- Basic curative care and treatment of major chronic conditions
- Hygiene and environmental health
- Health education and communication
- Access to emergency care via medical evacuations.
- Other essential surgical and specialist medical advice provided off-island by neighbouring islands, *excluding* ongoing renal dialysis, chemotherapy, transplants and complex cancer surgery.

The total future annual recurrent costs of this package are estimated at XCD $17.6 million. Assuming that the allocation of the government's annual budget to healthcare expenditure remains broadly consistent with the current arrangement, future implementation of the proposed essential package of care would result in a shortfall of around XCD $4.1 million per year.

Health financing options

There are two ways in which this money for the essential package can be made available: making financial savings by improving the efficiency of current service provision and changing the health financing arrangements.

Savings

Opportunities for financial savings through greater efficiency are important, but are rather limited. The most promising option is to carefully explore the use of a third party administrator to arrange care for patients overseas. As a conservative estimate, if the cost of overseas referrals could be reduced overall by 10%, the level of annual savings would be XCD $0.16 million. Negotiating and actively monitoring third party administrator contracts requires a particular set of skills and it would be important that Montserrat had access to such skills and that schemes used by other Caribbean islands are thoroughly explored.

The consolidation of primary care services onto three clinic sites and the new build hospital may yield some modest savings, but these are unlikely to be significant.

The Government of Montserrat needs to act soon to improve the prevention and management of non-communicable diseases. Strengthening primary provision - as well as tackling the underlying causes of diet, obesity, smoking, alcohol and insufficient exercise - is likely to improve efficiency in health care and in the long term, lower expenditure associated with secondary and tertiary care. These are vital potential savings, but given that this efficiency saving would only be seen in the longer term, this has not been factored into the future projection.

Overall, we consider that efficiency savings of XCD $0.16 million could be achieved through efficiency savings in the short term from the appointment of a third party administrator for managing overseas referrals. The savings would reduce the overall costs of the essential package to XCD $17.4 million and the shortfall to XCD $3.94 million.

Financing mechanisms

There are a number of recognised methods for funding healthcare services which are used around the world. The main ones are:

- User payments (out of pocket expenses)
- Private medical insurance
- General taxation
- National health insurance.

This report discusses the advantages and disadvantages of each of these four methods.

The current system of **user fees** raises a relatively small amount of money, is expensive to administer, and is unfair to some patients who may even have to incur debts to pay for essential treatment. It is recommended that user fees are not seen as a significant method for generating overall revenue for healthcare. Depending on the overall decisions about health financing, consideration should be given to abolishing fees completely. This would have many advantages, but should only be considered if there are firm plans about how to cover the resulting financial shortfall of an estimated XCD $315k per year. (Fees for cold body storage and cemetery dues are not health care fees: it may well be sensible to continue with these charges.)

It is not advocated that **private health insurance** be considered as a principal method of funding the costs of healthcare: it is expensive and often excludes people with pre-existing

conditions. Of course, individuals can continue to purchase private medical insurance if they wish.

The largest private health insurance scheme is SAGICOR; it should be thoroughly reviewed in terms of value for money and fairness. The low uptake of the scheme for multiple dependents suggests that many beneficiaries do not think the scheme offers good value for money. Clearly the private health insurance premiums for employees play two roles; it is both a health financing method but it is also part of an employment benefits package. Consideration should be given to (a) whether the scheme represents good value in terms of health benefits to government and (b) if there is a better way to provide employment benefits, e.g. a salary increase of an amount lower than the annual premium.

The two viable options for future health financing are taxation and national health insurance. Most locally generated funding for healthcare currently comes from general taxation. If general **taxation** was the only source through which revenue was raised on-island and if user fees were no longer applied, then additional rates of general taxation would need to be levied from individuals to ensure that the additional costs incurred in the future could be financed.

A more radical health financing option to consider is **National Health Insurance** (NHI). NHI pools resources from a population to cover the costs of health care. NHI is generally compulsory (i.e. individuals cannot opt out), with government making contributions on behalf of people who cannot afford the premiums. A distinct difference from general taxation is that payments into an NHI scheme are ring fenced and transparently allocated to health care.

There are many forms of NHI. For the population size for Montserrat, common sense needs to prevail about how NHI could work. The challenge is to enhance independent decision-making and to create an NHI "character", without escalating administration costs. At 16%, expenditure on central administration is already high and certainly should not increase. So, when considering NHI in Montserrat, the key questions are:

- Is it realistic to use existing government-wide revenue collection mechanisms such as the Department for Social Security and Pensions to collect premiums earmarked for health?
- Is it necessary to establish a new board or authority? What would be the advantages? Possible advantages are that the authority could work outside some civil service rules (e.g. related to employment) and that the authority could perhaps focus more on evidence-based health care delivery, more removed from political vagaries.
- What would be required to establish a new authority or service delivery unit and would this be feasible? A key consideration is whether there would be sufficient workforce resources and capability to resource this. If it is not possible to re-allocate some of these existing staff to the authority or service delivery unit, additional costs will be incurred in appointing to these new posts and the expertise required may have to be sourced from off-island.

Recommendations

The main recommendations are:

- Define and implement an essential package of health services.
- Contract with a third-party administrator to manage off-island overseas referrals.
- Develop and implement a strategy to address rising levels of non-communicable diseases, including work to tackle obesity, smoking and limited exercise.
- Systematically explore the possibility of introducing some form of NHI and present the findings to Cabinet.

The report ends with a proposed timeline for introducing revisions to the health financing system, starting with Cabinet approving a one-year plan of work to show how NHI could work and options for variations of NHI, and ending (depending on what decisions are made along the way) with the abolition of user fees and the introduction of NHI.

1 Introduction

Designing a solution that supports the long term objectives for healthcare provision in Montserrat, including its future financial sustainability and viability, is a key objective of this review. Focusing on the current financial arrangements and considering what could be done differently in the future to improve equity, efficiency and sustainability, as well as to have the potential to raise more money for health, this report appraises the options to identify the preferred mechanism and provides the route map for the Government of Montserrat to consider for its implementation.

Defining a change in arrangements for financing the cost of healthcare provision across the country's population of around 5,000 is predicated on having a thorough understanding of how the current system works. Therefore, the initial section of this report builds on the work highlighted to date through the 'Inception' and 'Key Findings' reports.

Our 'Health Service Options and Costings' report has identified a preferred option for the delivery of on and off-island services in the future; strengthening the co-ordination and delivery of health promotion and prevention services, integrating and consolidating primary care services within fewer clinic sites, and the scope of a new 20 bed hospital build. Associated with implementing this option, we have identified the associated operational costs which, to account for the requisite additional posts to improve patient safety and the quality of care, is higher than the current budget and expenditure on healthcare. This overall cost of providing the future profile of healthcare services has been estimated at XCD $19.0 million per annum.[2]

As a consequence of this, and the fact that health financing in Montserrat could be more efficient and equitable, new ways of financing the costs of the future healthcare model need to be considered. This report explores the ways in which this could be considered, by discussing central government financing, user fees and private and national health insurance.

[2] This includes the estimated costs of access to specialist tertiary care services off-island

2 Current finance and revenue arrangements

2.1 Overview

The sources of health spending in Montserrat are currently:

- Government income (from taxation)
- Financial Aid
- User fees
- Private health insurance.

The first three sources (which account for the vast majority of all spending) are pooled and then allocated between sectors as part of the national budget: a certain amount is allocated to the Ministry of Health and Social Services (MoHSS) each year. Details of the current system are described below.

2.1.1 National Budget Allocation

As a UK Overseas Territory, the island has been able to access financial aid from the UK to rebuild and sustain public finance, thereby decreasing the pressure on the post-volcano economy. The UK Department for International Development (DFID) provided around XCD $74 million towards the recurrent expenditure budget of XCD $121.4 million in 2016-17 (61%). DFID also provided between 50-60% of Montserrat's capital budget of around XCD $39 million, with the remaining funds provided by the European Union (EU) and other funding partners. When combining recurrent and capital, Montserrat's national budget in the fiscal year 2016-17 was XCD $160 million.

On an annual basis, the MoHSS submits a requested budget to MoFEM and after review, an allocated budget is agreed. XCD $21.3 million (around US $7.8 million) was allocated to the MoHSS in 2016/17, around 18% of the recurrent expenditure budget. Of this budget:

- 39% was spent on secondary health care
- 27% was spent on social services
- 11% was spent on primary health care and health promotion[3]
- 7% was spent on environmental health services
- 16% was spent on central administration.[4]

Expenditure on healthcare services (excluding purchase of furniture and equipment and maintenance services) is estimated to be around XCD $12.7 million.

The global average for health expenditure as a percentage of government spending is 15.5%. In Montserrat this is 13.14%, or 85% of the global average. Although these are very aggregate figures, they do suggest that the proportional allocation to health is broadly reasonable.

[3] Some health promotion funding is also allocated within the other services

[4] Ministry of Health and Social Services Budget Breakdown

2.1.2 Revenue Collection – user fees

The Public Health Act sets out the fee rates for services. These fees differ for different population cohorts; between nationals of Montserrat, Caribbean nationals who pay one and a half times the rates and 'aliens' who pay two times the rate. Children born in the territory whose fathers are non-nationals are also required to pay fees for services. In 2012, it was thought that non-nationals represented between 20% and 30% of the total population[5].

Around XCD $400,000 was collected in 2015[6] based on the current fee structure under the current Public Health Act. Whilst this Act was updated in 2009, it is still heavily subsidised by government revenues meaning there are considerable discrepancies between the actual costs of service provision and revenues collected.[7] The discrepancy between user fees and cost varies depending on the service, for example: in 2010 the average cost of a casualty attendance was reported to be XCD $141[8] compared to the user fee of XCD $10 per visit in the Public Health Act; and the average cost of a radiology scan was reported to be XCD $119, compared to the user fees of between XCD $10 and XCD $50 per scan.

Persons with the means to do so may pay out of pocket at the time the expense is incurred, through a private health insurance scheme through their employer, or by means of private bank loans or otherwise. There is a substantial difference here between out-of-pocket expenses on island, which are typically small, and out-of-pocket expenses overseas, which are very large for a local person without much savings. Neilson (2012)[9] estimated that 28% of the population fell within this group of employed but not covered by their employer.

The responsibility for fee collection sits with the Revenue Collection department which is located within the Medical Records office at Glendon Hospital. The department is advised to avoid holding more than XCD $2,000, with all collected patient fees remitted to the Treasury consolidated fund. It is noted though that in 2015 only 50% of total invoices for secondary care admissions were paid. When payment is not received within the one-month payment period, the revenue collection department does not have a clear strategy on how to chase these debts.

2.1.3 Private Health Insurance

As at 2011, 21% of the population of Montserrat were covered by private health insurance through their employer. In 2012, two companies offered health insurance in Montserrat. Sagicor (originally called Barbados Mutual) covered 993 people (65% employees and 35% dependents) and represents the Government of Montserrat sponsored Civil Service Association (CSA) members plus Social Security, The Philatelic Bureau, Tourist Board as well as large businesses such as the Montserrat Port Authority and Bank of Montserrat. In contrast, CLICO covered 29 people (79% employees and 21% dependents).

For Sagicor, the Government of Montserrat pays monthly premiums for employees (XCD $70.12) and members pay XCD $92.48 to add dependents who qualify. This figure is fixed regardless of how many dependents an employee may add.

CSA premiums are low compared to private sector insurance and, as part of the insurance plan, Sagicor state 100% of medevac bills will be covered, in addition to two travel tickets per year for overseas medical treatment to the closest location. The policy will also cover 60-80% of most

[5] The statistics department will produce a full update to their 2011 report in 2021. Based on a discussion with them around their mid term analysis, they assume this figure will not have significantly changed.

[6] Medical Records Statistics Report 2015

[7] Government of Montserrat (2016) ITT

[8] Neilsen LC (2012) Montserrat Health Financing Review Final Draft

[9] Neilsen LC (2012) Montserrat Health Financing Review Final Draft

medical bills, and works on the basis that the patient must pay themselves and then make a claim to Sagicor to recover their costs. This may often involve patients taking short term debt loans.

The fact that 65% of those insured by Sagicor are employees themselves suggests that the package of care for dependents may not be attractive to most employees, despite the seemingly attractive arrangement that a premium is for all dependants. This may suggest that many employees consider that the scheme for dependents is unaffordable, poor value for money or unreliable.

It was also highlighted that Sagicor may reject patients from their policies if they have pre-existing conditions, or will not provide full coverage for them. The key benefit for patients is most likely to be the medevac coverage which is not offered by other private insurance companies. Recently, additional private insurance companies have begun offering policies to Montserratians, targeting those rejected by Sagicor.

2.2 Exemptions and medical assistance

To protect the young, elderly and most vulnerable Montserratian nationals who can demonstrate inadequate means of paying for services, either free care is provided through defined exemption categories for paying for services or medical and social assistance is provided.

To provide protection to residents and ensure that user fees do not deter access to services, the Government has defined categories of the population who are exempt from these payments. Under the Public Health Act 2002, the categories of residents who are exempt from health service user fees are:

- Essential government workers including those employed by the MoHSS, Montserrat Defence Force, Royal Montserrat Police Force, prison officers
- Patients who are indigent[10]
- Children normally domiciled in Montserrat
- Students who are normally resident in Montserrat and who are on bona fide vacation from their attendance at an institution offering full time education
- Resident Montserratian over 60
- All pregnant women up to 2 months post-natal period.

Approximately 40% of the population are exempt from paying for services.

All other categories are liable to pay for some aspects of their care in relation to consultations, diagnostic investigations, ward stays, and theatre use.

Under Medical Assistance, the level of financial assistance provided is approved on a case-by-case basis by the Director of Social Services (guided by the decision of the Medical Referral Committee and the Chief Medical Officer) as well as by the social and financial assessment of the household situation through means testing. Partial assistance or partial repayment is also considered. The level of financial assistance provided for medical treatment is determined by the agreed essential package of care but is subject to financial resources available to the MoHSS and Government of Montserrat. This essential package of care may include an elective overseas referral. In 2016, there were around 100 cases of overseas referrals which received financial assistance, totalling approximately XCD $620,000.[11]

[10] Those Montserrat residents who are living in poverty

[11] Based on the “Overseas Referral for 2016 For Review” document received from Cheflyn Halloran-Crichlow.

2.3 Issues with the current system

From the description of the current mechanism used to raise revenue to finance healthcare services, some key points can be made:

- User fees do not raise much money (less than 2% of government spending on health) and the current user fee collection process is ineffective.
- User fees are inequitable in that a number of poor people are not exempt from fees. Of these, some will probably pay whilst others get away with non-payment.
- To be effective, the collection of fees is likely to be costly in terms of administration. For example, if it took one person on an average salary to administer all aspects of fees, this could cost XCD 30,000 per annum, or 7.5% of the income from fees.
- It is likely that some people are going without essential overseas treatment because of the cost of care or they are going into debt to pay for the treatment. Medically-caused debt is globally recognised as a barrier to lifting people out of poverty.
- The Government is paying about $542,730 per year for 645 employees ($70.12 per month) for private medical insurance cover. This is about 3.5% of the health budget and only covers a relatively narrow range of services that are required relatively infrequently, given that in practice it is used mostly to cover off-island care.
- Sagicor does not need to cover patients with pre-existing medical conditions. This is called “cherry-picking” and the Government or individual is left to pay for some much-needed services.
- Discrepancies in the definition of exemption categories - essential government workers are exempt from paying for services but also have insurance cover through the government scheme – means that the government is paying into a scheme for little return for these employees.
- The medical assistance scheme is currently Montserrat’s mechanism for dealing with cases where nationals cannot afford to pay for the services they need.

The reason for reviewing health financing mechanisms is to see if there can be a more efficient, less personalised and stressful way of dealing with this recurring issue.

3 Future budget and costs of healthcare (2025)

Within our previous deliverable on the health service options and costs, the estimated future cost of implementing Option 2 is approximately XCD $19.0 million. This includes the total costs of healthcare both on and off-island, including the estimated cost of access to specialist tertiary care.

Option 2 would see the continuation of the provision on-island of routine and emergency surgery, obstetrics and midwifery, emergency paediatrics, acute medicine and supporting clinical services. All complex and major surgery would be provided off-island together with day case and routine elective paediatric surgery. However, given the current dual qualification of the current on-island specialist general surgeon, low risk routine paediatric surgery would be continued on-island under their clinical management.

The budget for health and social services in 2016/17 was set at XCD $21.3 million. Assuming that the current proportion and allocation of Treasury funds to the MoHSS remains broadly similar, but would grow in line with changes in the population, the future estimated allocation to the MoHSS in 2025 would be XCD $22.7 million.[12] If the budget lines for Social Services and the capital funding for equipment and maintenance are excluded from this estimated budget, then the future allocation of operating costs for healthcare service delivery could be approximated at around XCD $13.5 million.

Comparing the future costs of care with the potential available budget, identifies an overall shortfall of XCD $5.5 million.

In funding the future costs of care, decisions need to be made in terms of defining the minimum offer that the government would ensure all residents can access, the essential package of care; who would be protected and exempt from any potential future co-payments for services; and the future financing mechanisms which would underpin the provision of this minimum package of care, accessible to all residents.

[12] Inflation has not been considered since financial aid, taxable revenues and costs would increase at similar rates.

4 Defining the essential package of care

Essential minimum packages of care aim to concentrate scarce resources and interventions which provide best value in terms of, for example, improved effectiveness and equity, within an overall affordability envelope. They are often seen as a practical tool for improving service delivery since they focus attention on effective interventions, promote good practice and can help clarify the levels at which these interventions should be available.

They provide a guaranteed minimum package of care of typically public health and clinical interventions which will be provided at a primary and secondary care level for which the workforce, medicines, equipment, and other resources required to deliver should be made available. This does not mean that other services cannot be made available, simply that a different financing mechanism to cover their costs needs to be determined.

In a predominantly tax financed health service, similar to that in Montserrat, the essential package of care generally describes those services to be provided by government or government-contracted institutions. In a health system with mixed financing, it can describe the services which government will provide for the uninsured population, or which it will cover by paying insurance premiums for selected groups who cannot afford insurance.[13]

4.1 Recommendations outlined within the Medical Assistance policy

The Medical Assistance policy identifies that an essential package of care should be agreed to support the prevention and management of non-communicable diseases, communicable diseases and other conditions. For example, certain public health preventative measures and essential packages of care for the early management of non-communicable diseases and other conditions are recommended, including:

- Child health and immunisation
- Sexually Transmitted Disease (STD) awareness and prevention
- Basic dental and vision screening for children
- Essential antenatal care
- Diabetes monitoring, management, and preventative care
- Hypertension monitoring, management, and preventative care.

These may be provided either heavily subsidised or free of charge to both exempt and non-exempt groups, if not covered by any private health insurance.

Introducing a package of care for the prevention and management of non-communicable diseases is a vital step in the development of health in Montserrat. To do it properly, there have to be far-reaching changes in the way primary health care is delivered, and also vital changes beyond the health sector, particularly in relation to diet, smoking and exercise.[14]

4.2 Considerations and recommendations

We would agree with the recommendation within the Medical Assistance policy to provide an essential minimum package of care which includes at least all those aspects of preventative

[13] Essential health packages. What are they for? What do they change? Catriona Waddington, HLSP Institute, 2013

[14] For more information about PEN – the Package of Essential Services for Non-communicable Diseases, see: http://www.who.int/cardiovascular_diseases/publications/implementation_tools_WHO_PEN/en/

care and primary care for non-communicable diseases, STD, child health and immunisation, dental, visual screening, and antenatal care. In doing this, the essential package of care would include, as a minimum, all aspects of primary care, basic dental care, and environmental services. The future budget allocation for these health services would be a minimum of XCD $3.6 million. However to tackle non-communicable diseases (NCDs) effectively, this budgeted allocation would need to ensure it provides effective NCD prevention work.

However, as is typical in lower and middle-income countries, the definition of the essential package of care is intended to be a guaranteed minimum, typically comprising a limited list of public health and clinical services provided at primary and/or secondary care level, including:

- Family health: antenatal, delivery and new-born care, post-natal, family planning, child health, immunisation
- Communicable diseases
- Primary and secondary prevention of non-communicable diseases
- Basic curative care and treatment of major chronic conditions
- Hygiene and environmental health
- Health education and communication.

This definition would therefore widen the essential package of care to the access and provision of care on-island; encompassing those services above, provided across primary, community and secondary healthcare.

In addition, access to emergency care via medical evacuations should also be included within the essential package of care; bringing peace of mind to all residents about receiving appropriate care and treatment with immediate life-threatening conditions without the burden of families and relatives needing to agree a repayment plan for these limited but costly episodes of care. Other major surgical and specialist medical advice that falls within the definition of “essential” and which could be provided off-island by neighbouring islands should also be included.

However, the essential package of care could not cover cases which would have a detrimental impact on long term resources. Therefore, those patients in renal failure requiring ongoing renal dialysis and patients requiring chemotherapy would be excluded from the essential package of care. In addition, other exclusions would be those small number of patients requiring elective or emergency access to transplantation services and complex cancer surgery. For some of these conditions, systems are in place to provide care in the UK or, if not Montserratian, their home country. On the basis of this wider definition of the essential package of care, the total future costs of care associated with this would be XCD $17.6 million.[15]

As stated earlier, defining an essential package of care does not mean that patients with other health conditions would be turned away. However, there would be no guarantee that resources would be available to deal with their needs. In the case of Montserrat, this would relate to tertiary care or long term ongoing care off-island or privately accessed on-island.

In summary, the essential package of care being recommended is shown in Table 1.

Table 1: Defining the essential package of care

Inclusion/Exclusion	Location	Service Description
Inclusions	On-island (public sector)	Health promotion

[15] Mott MacDonald (2017) Health Service Options and Costing Paper

Inclusion/Exclusion	Location	Service Description
		Primary care Community services • Orthodontics (Visiting specialists) Community mental health Basic dental care Hospital services: • Routine elective and emergency general and urological surgery • Midwife led births • Obstetrics deliveries (including C-sections) • Acute medicine (including respiratory, heart disease, endocrine, dermatological and gastrointestinal diseases) • Day case, short stay medical admissions and low risk paediatric surgery (if undertaken by dual trained surgeon) • Day case and elective gynaecological surgery (Visiting specialists) • Day case ophthalmology (Visiting specialists) • Day case and elective orthopaedic surgery (Visiting specialists) Laboratory Imaging – X-Ray, Ultrasound and potentially Mammography (if private provider on-island) Physiotherapy Occupational therapy
Inclusion	Off-island	Emergency evacuations, including major trauma Plastic surgery and Burns Cardiothoracic surgery Neurosurgery ENT surgery Oral and Maxillo facial surgery Complex elective and emergency surgery including general surgery, urology, orthopaedic and gynaecology (except for complex cancer surgery and transplantations) Minimally invasive surgery Complex medical admissions requiring ITU Elective inpatient ophthalmology Complex births and related newborn care Imaging – CT, MRI, Fluoroscopy, DEXA Inpatient mental health
Major exclusions		Long term ongoing haemodialysis Chemotherapy Complex cancer surgery to remove tumours Cosmetic surgery Transplantations Imaging - PET Private healthcare on-island Private healthcare off-island (unless this is an acknowledged provider of off-island care described above)

It is recognised that for some of those patients requiring complex cancer care and transplantations, the UK quota can be accessed.

5 Exemption Categories

Under the current exemption categories, as defined within the Public Health Act, the future cost of access to secondary care services would represent approximately XCD $3 million of direct costs associated with the provision of this care. This assumes that approximately 40% of admissions and attendances to secondary care services are by those within the exempt categories. An estimate of the proportion of 'fixed' overhead costs[16] associated with this care would represent a further XCD $1.1 million.

Therefore, on the basis that the current exemption categories were maintained, across both primary and secondary healthcare, the cost of services which do not attract any user fees or co-payments would be XCD $7.7 million, as shown in Table 2.

Table 2: Healthcare expenditure attracting no user fees/co-payments (based on current exemption categories)

Service	Cost
Primary care (excluding mental health)	$3.6 million
Secondary care (exemption categories)	$3.0 million
Proportion of 'fixed' secondary care costs	$1.1 million
Total	$7.7 million

However, we have already identified the current inequities with the current exemption categories. If the Government of Montserrat were to change this and address the inequities, then the impact of revenues can be identified. For example, if access to the essential package of care was made available to all residents (to include Montserratians normally residing in Montserrat, persons naturalised as Montserratians, permanent residents, and economic residents- assuming that they have been contributing to the economy for a number of years), then for:

- Primary care mental health, the direct costs and proportion of indirect costs of this service protected from any user fee or co-payment would be XCD $442,000.
- Maternity, (covering the cost of all births whether by normal delivery or by caesarean section), the direct and indirect costs of this service protected from any user fee or co-payment would be XCD $617,000.
- Paediatric medical admissions, the costs protected from user fees and co-payments would be XCD $395,000.
- Secondary Care services for those over 60 years old, the direct and proportion of indirect costs protected from user fees and co-payments would be XCD $1,719,000.

A further exemption which could legitimately be considered would be, as part of the ongoing management of non-communicable diseases, the inclusion of diabetic and hypertensive medical admissions. The cost of providing this care on a universal basis would be XCD $305,000 (excluding those over 60 years who are already accounted for in the 'over 60-years-old' exemption category) which would also be protected from user fees or co-payments.

In summary, the total costs of the services exempted from user fees or co-payments are shown below in Table 3.

[16] This cost includes staff posts for management, ancillary staff etc. and for overheads such as expenses, utilities and travel.

Table 3: Further consideration of the costs associated with those exempted from payment

Service category	Cost (XCD $)
Primary care (excluding mental health)	$3,603,000
Proportion of 'fixed' secondary care costs	$1,102,000
Suggested revised exemption categories:	
Primary care mental health	$442,000
Maternity	$617,000
Paediatrics	$395,000
Diabetic/Hypertension admissions	$305,000
Secondary Care for those over 60 years old	$1,719,000
Total	$8,183,000

Overall the cost of the essential package of care for people exempt from user fees would be XCD $8.14 million; representing 47% of the overall future costs of care. It is important to be clear that even if there were some fees for these services for currently exempt groups, the money raised would most likely be only a very small proportion of the XCD $8.14 million: user fees typically cover only a small part of the total cost of the health service to which the fee is attached and this is certainly the case for the current fee structure in Montserrat.

However, there is a choice and the Government of Montserrat can either continue with current exemption categories (including essential government employees), select a combination of these categories identified above, or identify a further selection of services and population cohorts to be exempt from payment within the essential package of care.

It is important to be able to define this and its associated costs to allow consideration of those populations where the required revenue, through either further taxation, insurance and/or user fees, could be generated; ensuring the achievement of a balanced budget.

These financial mechanisms for raising the requisite revenue required to fund the future costs of care are considered in the next section of the report.

6 Revenue

6.1 Revenue versus expenditure

Assuming that the allocation of the government's annual budget to healthcare expenditure remains broadly consistent with the current mechanism for allocation, but recognising that the population is intended to grow moderately over the next 10 years, then the annual government budget available for healthcare expenditure would be around XCD $22.7 million by 2025[17]. Excluding the estimated budgets for Social Services, equipment, and maintenance (as these latter two categories are largely capital), the remaining proportion of this budget; estimated at around XCD $13.5 million; would be available to fund the operational expenditure of services. In addition, and in line with current arrangements, there would also be modest level of income raised through user fee charges for some services.

However, the future implementation of the essential package of care under Option 2 would cost around XCD $17.6 million per annum (Section 4.2) resulting in a shortfall in available financial resources of around XCD $4.1 million.

For the reasons of equity and efficiency explained in previous chapters, and to achieve a sustainable financial position, the overall financing mechanism needs to change in the future and revisions to the current arrangement and/or alternatives need to be considered. These are described and discussed below.

6.2 Improving efficiency of service provision

Prior to discussing revisions or alternative arrangements for raising revenue to cover the costs of healthcare in the future, there are a number of initiatives which could be implemented which would improve the efficiency of the service provision and which would achieve some financial savings.

6.2.1 Third Party Administrator

Chief amongst these is a third party administrator used to arrange care for patients overseas. Currently, significant effort is expended by medical and administrative staff in organising this care. Given that each patient referral is managed on a case-by-case basis with a variety of overseas providers, the MoHSS has limited negotiation and purchasing power, which result in higher costs being paid for this care.

Whilst there is a cost associated with this type of arrangement; typically a percentage of the overall cost negotiated; outsourcing this to a third-party who are well versed in handling this type of arrangement could achieve dividends for the MoHSS, and reduce the overall costs of care overseas.

The MoHSS would set out its requirements for overseas referrals i.e. typical annual volume and likely mix of cases and could specify to the third-party administrator their preferred overseas providers and any conditions required e.g. translation requirements if sending to a French or Spanish speaking country. On behalf of the MoHSS, the third-party administrator would then negotiate the best deal with these providers. Its purchasing power is much greater since it is dealing with requests from many other sources. When a referral overseas is required, the

[17] This excludes inflation.

MoHSS would simply need to contact the third-party administrator and they would make all the necessary arrangements.

Figure 1: Third Party Administrator Case Study

The British Virgin Islands (BVI) have recently secured an agreement with a third-party administrator, United Healthcare, to provide overseas healthcare access for the Territory's residents. The initial agreement is for 6 months (pending extension), and provides access to a network of healthcare providers across USA, Europe, Asia, and other parts of the world. So far, the Social Security Board (who have responsibility for the NHI on BVI) have reported benefits in terms of lower costs and convenience. There has been as high as an 80% cost savings in some cases, with the associated co-payment for the patient also being lower.

United Healthcare is an operating division of United Health Group. United Healthcare has a network of 600,000 healthcare professionals, 80,000 dentists and 5,000 hospitals. More information can be found at: www.unitedhealthcareonline.com

As seen within the case study, this type of arrangement is already being used by others across the Caribbean, including BVI and Anguilla, and Montserrat could explore the opportunities of linking in with their schemes rather than looking to establish a new arrangement with a third party administrator.

As a conservative estimate, if the cost of overseas referrals could be reduced overall by 10%, the reduced cost of care offset by the cost of contracting with a third-party administrator, the level of annual savings would be XCD $0.16 million.

Negotiating and actively monitoring third party administrator contracts requires a particular set of skills and it would be important that Montserrat had access to such skills. This is another reason for exploring the details of the BVI scheme and for considering linking in with existing schemes.

6.2.2 Consolidation of Primary Health Centres

A recommendation within the Health Services Options report is the consolidation of primary care services onto three clinic sites rather than the current four sites. Whilst, primarily, this is being recommended to make best use of primary care staff resources, reduce lone working and to take some of the pressure away from the casualty department at the hospital, maintaining fewer sites and developing rotas which aim to maximise the use of staffing resources, could achieve some efficiency savings, although these are not considered to be significant.

6.2.3 Other opportunities

There may be some further efficiency savings achieved from the new build hospital compared with the costs of maintaining the existing hospital buildings; many of which are old and not fit for purpose. Again, whilst, there could be savings achieved from this, given the current level of expenditure on maintenance of the existing hospital site, we would consider that any savings achieved through the new build would be modest.

However, a more substantial longer term efficiency saving could be derived from the improved coordination and management of preventative and primary care services for those with Non-Communicable Diseases (NCDs). NCDs tend to be diagnosed quite late and require more expensive, acute medical care. Strengthening primary level provision of both preventative and treatment services - as well as tackling the underlying causes of diet, obesity, smoking, alcohol and exercise - is likely to improve efficiency in health care and in the long term, lower

expenditure associated with secondary and tertiary level care. Given that this efficiency saving would only be seen in the longer term, this has not been factored into the future projection.

6.2.4 Overall

Overall, we would consider that there could be a potential maximum of XCD $0.16 million achieved through the implementation of our recommendations and the establishment of a third party administrator for managing overseas referrals. The savings would reduce the overall costs to XCD $17.4 million and shortfall to XCD $3.94 million.

6.3 Financing Options

Nonetheless, whilst these efficiency savings can support a reduction in the financial gap between revenue and expenditure, the fundamental issue remains that the current methods for raising revenue will not cover the future costs of providing the essential package of healthcare. Moreover, the current situation is not necessarily the most efficient or fair way to fund health services. Therefore, consideration must be given to the implementation of potential changes in the way revenue is raised in the future.

Health financing strategies look to address three key challenges:

- The expansion of risk pooling, which implies shifting from out-of-pocket financing to public or private pooling arrangements (see Box 1 for an explanation of these concepts.)
- Improving efficiency in how resources are mobilised and how resources are allocated
- Ensuring equity in access.

Underlying this are issues of feasibility and the long-term sustainability of any new financing mechanism, set within the context of the economic, social and political factors of the country.

Box 1 Risk pooling and financial pooling

Risk pooling

Every individual person has a different likelihood (risk) of needing health care services. People who smoke, or are obese, for example, have a higher risk, as do people who have certain chronic conditions. The problems with asking people to pay according to their risk are obvious: rates for the least healthy members of the population and for the very old would be unaffordably high and families would get themselves into debt to pay for health care. The more people join together in a financing scheme, the more that risk is pooled. For example, in any one year, most people in Montserrat do not require emergency medical evacuation off-island, but a few do.

Financing pooling

Financial pooling means that money allocated to health is put together into one “pot” of money. A purely private consultation with a doctor which is paid for at the time of use out of pocket is a non-pooled arrangement. Health services which are funded by central government taxation are paid for entirely through a financial pooling arrangement. The more people who pool their money for health care together, the easier it is to plan for what the nation as a whole needs.

In assessing potential financing options, it is also important to be mindful of the direction of travel to a financing approach which supports universal health coverage, defined by the World Health Organisation (WHO) as: *"Financing systems need to be specifically designed to: provide all people with access to needed health services of sufficient quality to be effective; [and to] ensure that the use of these services does not expose the user to financial hardship."*[18] As well as promoting equitable use and provision of services relative to need, promoting service quality and improving efficiency, any preferred approach should also promote universal protection against financial risk, creating a more equitable distribution of the burden of funding the system.[19]

Generally speaking, there are a number of recognised methods for funding healthcare services which are used around the world. These include:

- User payments (out of pocket expenses)
- Private medical insurance
- General taxation
- National health insurance (social insurance).

Some systems include a mixed approach of these methods; as is the case currently in Montserrat where healthcare services are funded through general taxation and subsidised user payments. Also, in the cases of user payments and insurance there is not just one way of implementing the finance method; user fees can, for example, cover all the costs of a service, or just a part, and the income might be kept by the institution providing the service, or returned to the central government treasury. Private medical insurance might be voluntary or compulsory and it might, for example, be linked to a particular provider of health services or able to be used at any certified provider.

In terms of those most likely to be able to contribute to these systems, at the most recent Census in 2011, the island has a population of 4,922 of which 2,623 persons (53%) were classified as economically active (with 95% employed and 5% unemployed). Around half of employed individuals work for government and statutory bodies, whilst the remainder mainly work in the private sector. Around 73% of the population are nationals and around 27% are non-nationals, i.e. individuals who were born outside Montserrat, and came to live on Montserrat after 1991.[20]

The next sections of this report explore the potential application of each of these methods to the future scenario and context of healthcare provision in Montserrat.

6.3.1 User fees

User fees are a current feature of healthcare financing in Montserrat. In 2015, user fees on-island from secondary care services, drugs and other services amounted to XCD $402k. Across those services where user fees are charged, the largest areas are in drugs, laboratory tests and the cold body store, as shown in Table 4.

Table 4: Revenue collection at Glendon Hospital, 2015

Services	Revenue collected (XCD $)
Cold Body Store	86,240

[18] World Health Organisation (2010) The world health report – Health systems financing: the path to universal coverage. Geneva

[19] Kutzin J (2013) Health financing for universal coverage and health system performance: concepts and implications for policy. WHO; Bull 91: 602-611

[20] Mott MacDonald (2017) Inception Report: Health system and financing review

Services	Revenue collected (XCD $)
Medicine & Material	92,987
Laboratory	60,139
Radiology (Ultra + X-Ray)	38,677
Casualty	19,277
Consultation	24,261
ECG	9,435
Delivery	5,375
Misc.	1,863
Physiotherapy	1,470
Cemetery Dues	643
Theatre	2,018
Anaesthetic	3,393
Ward	29,980
Surgery	26,600
Total	402,356

Source: Government of Montserrat

Fees for cold body storage and cemetery dues are not included in the following discussion. These are not health care activities and it may well be sensible to continue with these fees.

As stated earlier, current levels of fee rates in most of these service areas are low and bear little or no relation to the actual costs being incurred. However, despite this, the collection of current revenue owed would appear to be far below the potential of the existing rules, with potentially a significant proportion of fees remaining uncollected and no mechanism for chasing these debts. For example, our assessment of the fees relating to hospital admissions has identified that of the XCD $112k owed in relation to a hospital admission, only XCD $60k was paid i.e. only 54% of fees owed were paid.[21] The reasons for non-collection of fees for admissions may be varied; some of which may relate to the inability of some to afford the costs (although financial assistance through the Medical Assistance policy should be available). Others are probably debtors with the means to pay but who are not followed up subsequent to discharge.

The description above also shows why the scheme is expensive to administer, especially in relation to the low level of income: there are staff who spend time collecting and chasing money, and other staff who spend time considering exemptions through Medical Assistance.

Given that, to date, user payments comprise only a small proportion of overall revenues and the success of collecting payments seems limited, it would make very little sense to adapt this system as the principal method for generating overall revenues for healthcare. Furthermore, and more importantly, the method goes against what is trying to be achieved; namely, a more equitable system of access for all residents of Montserrat regardless of their ability to pay; as shown in Table 5 below which sets out the perceived advantages and disadvantages of such a method.

Table 5: Health System Financing Options: User Fees

Option	Advantages	Disadvantages
User Fees	Can encourage a more responsible use of services	Excludes those who need the service but cannot afford to pay

[21] Data relates to 2015

Option	Advantages	Disadvantages
		Tends to be a large number of exemptions requiring funding from general taxation Preventative service may lose out in funding to acute/curative care services Often raises only a small proportion of full costs, yet has high administrative costs Associated with debts that push some families into poverty and prevent some families from escaping poverty

As is clear from Table 5, user fees have many disadvantages. Depending on the overall decisions about health financing, consideration should be given to abolishing fees completely. This would have many advantages, but should only be considered if there are firm plans about how to cover the resulting financial shortfall of an estimated XCD $315k per year.

6.3.2 Private medical insurance

Some individuals on Montserrat have private medical insurance; predominantly those individuals who are wealthier or those from overseas who may be retired and resident for a number of months on the island. Many public sector workers also benefit from private medical insurance through SAGICOR although some workers are not eligible due to pre-existing conditions. For those public sector workers with membership with SAGICOR, the government pay XCD $70.12 per month as the employer's contribution to the schemes.

Table 6: Health System Financing Options: Private Medical Insurance

Option	Advantages	Disadvantages
Private medical insurance	Weighting of premiums according to use resulting in a deterrent effect on demand The costs of every aspect of care are made more explicit Care may be managed by insurance companies so that only effective forms of treatment are used	Equity of coverage is negatively impacted - those that most need care cannot afford it. There still needs to be a system that covers those who cannot afford insurance May increase demand as individuals seek to get what they pay for (typically, results in a high proportion of GDP spend on healthcare) Preventative service may lose out in funding to acute/curative care services Not all the money paid in goes on healthcare – high administrative costs are incurred as well as a profit margin Individuals have to seek prior approval for spending Individuals may shop around until they get what they want – demand may increase among some sectors Creates multiple risk pools and fragmentation

Table 6 identifies the advantages and disadvantages associated with private medical insurance. Its biggest drawbacks are that those in most need of care are unable to afford the insurance premiums or indeed may be barred from joining because of a pre-existing medical condition (i.e. creates greater inequities in access), and demand may increase where individuals seek to receive the benefits of what they have paid.

Therefore, it is not advocated that private medical insurance be considered as a principal method of funding the costs of healthcare. Of course, this does not mean that individuals cannot continue to purchase private medical insurance if they wish for their own purposes and choice, particularly in relation to accessing care overseas.

Further, there should be a thorough review of the SAGICOR scheme in terms of value for money and fairness. The low uptake of the scheme for multiple dependents suggests that many beneficiaries do not think the scheme offers good value for money. Clearly the medical insurance premiums for employees play two roles; it is both a health financing method but it is also part of an employment benefits package. Consideration should be given to (a) whether the scheme represents good value in terms of health benefits to government and (b) if there is a better way to provide employment benefits, e.g. a salary increase of an amount lower than the annual premium.

6.3.3 Tax based approach

A tax based approach to healthcare costs is the main method which is currently used by the Government. Through taxation, the Government raises around 40% of its recurrent expenditure on public sector services with the remainder received from Financial Aid. Of this total recurrent expenditure, the MoHSS receives approximately a 18% allocation.

Both the Government and DFID would wish to see a move towards sustainable health financing, both in terms of the health financing mechanism and in terms of enhanced efforts about the prevention/containment of non-communicable diseases.

There are distinct advantages and disadvantages associated with this method as highlighted in Table 7; in that it provides universal access regardless of the ability to pay (as long as it is open to all residents, regardless of citizenship) and is generally considered to be an efficient way in which to raise finance and manage costs. However, this ability to control costs can also result in poor quality. Furthermore, given that the service is considered free at the point of delivery by all, this can lead to overuse of the service or, in economic terms can result in a moral hazard. This is where a person will have a tendency to take risks or alter their behaviour, because the negative costs or consequences that could result will not be felt by the person taking the risk but by someone else; in this case, the Government.

Table 7: Health System Financing Options: General Taxation

Option	Advantages	Disadvantages
General taxation	Generally regarded as being efficient, delivering strong cost containment	Government has a strong capacity to control costs which could result in poor quality services
	Forces prioritisation and facilitates trade-offs	Can result in overuse and high expectations by patients and public
	Ensures universal access to services regardless of ability to pay	Degree of individual choice tends to be limited
	Low administrative costs and most feasible method of financing in terms of administration	Can be vulnerable in times of economic and fiscal difficulties
	Minimises distortions in particular sectors of the economy since it draws revenue from a wide base	

If general taxation was the only source through which revenue was raised on-island and if user fees were no longer applied, then additional rates of general taxation would need to be levied from individuals to ensure that the additional costs incurred in the future could be financed.

6.3.4 National health insurance

A more radical health financing option to consider is National Health Insurance (NHI). NHI pools resources from a population to cover the costs of health care. NHI is generally compulsory (i.e. individuals cannot opt out), with government making contributions on behalf of people who cannot afford the premiums. A distinct difference from general taxation is that payments into an NHI scheme are ring fenced and transparently allocated to health care; distinct from general government spending.

Table 8 shows the generic advantages and disadvantages of NHI.

Table 8: Health System Financing Options: National Health Insurance

Option	Advantages	Disadvantages
National Health Insurance	Prepaid system which pools health risks across individuals Ensures universal access to services regardless of ability to pay Funding of health services tends to be more transparent and removed from the political arena Payment by employers and/or employees may act as an incentive to modify behaviours i.e. health and safety	Can result in overuse and high expectations by patients and public Degree of individual choice tends to be limited Can be vulnerable in times of economic and fiscal difficulties Additional payroll taxes to fund contributions to NHI can negatively impact economic growth

6.3.4.1 NHI in Montserrat

In Montserrat, particular advantages of NHI would be:

- Replacing the current fragmented system of general taxation, user fees, private insurance, exemptions and medical assistance with a single pool of NHI funding
- Creating equity through the provision of the essential package of care on and off island according to need, regardless of ability to pay.

Premiums would be collected from those who are economically active and employed, with the Government paying for the premiums for those without the means to pay. Some revenue could be raised from retired/economically inactive people who are relatively rich.

The key requirements for effective NHI would include:

- Mandatory enrolment of residents.
- Means-based premiums with government funded premiums for the poor etc.
- Defined benefit package e.g. essential minimum package of care.

Setting up an NHI scheme would involve asking people to make earmarked contributions to pay for health. For some residents this would be new whereas others in Montserrat already contribute to existing private insurance schemes. Both these groups of people would want to be able to see where their contribution to an NHI scheme is going and the service offer this will provide them with.

An NHI scheme needs to have a defined character or brand. Examples of “health brands” elsewhere in the world include the UK National Health Service, or the British Virgin Islands health insurance scheme, which has its own distinct logo.

In NHI, it should be clear who collects the contributions, who allocates these, and who provides the health services. In Montserrat, it may make sense to use existing systems related to social

security and pensions to collect earmarked NHI contributions from individuals/employers and premiums paid by the government on behalf of those who could not afford to pay. Some of the government's contributions could be paid using existing UK Financial Aid.

The textbook version of NHI describes a situation where the organisation which allocates the money is separate from the organisation(s) which provide the health services; also referred to as the purchaser/provider separation in health care. In terms of the purchaser, this typically remains a Government function. In theory, it could be an independent third-party insurer, but the costs are likely to be high. In addition, there may be insufficient interested insurance companies willing to manage this, leading to even higher costs. A precursor on the provider side is the establishment of a statutory hospital board or Health Authority which would have overall responsibility for the management of the health service resources, including the financial management of the budget raised through NHI.

Relations between the purchaser and provider are managed through contracts which specify costs and what services have to be delivered.[22] One of the putative advantages of creating a separate purchasing organisation is that incentives can be built into the contractual relationships with providers and this can lead to improvements such as cost containment, greater efficiency, organisational flexibility and improved responsiveness of services to patient needs.[23]

It would be possible in Montserrat to have a purchaser/provider split. The separate "provider" could be renamed e.g. "Montserrat Health". Potential advantages are that "Montserrat Health" would not have to operate according to civil service employment rules and that it would have flexibility to make changes to the configuration of services, as long as it kept within budget and provided the required services. The existence of "Montserrat Health" would also provide the distinct organisational character which contributors to NHI would like to see.

However, it is important to be realistic about what this organisational change would achieve in Montserrat. This report describes in section 6.2.1 the advantages of having a "strong purchaser" of off-island care, and a third party administrator could work well under a purchaser/provider split. For on island care, the advantages are less obvious, as in practice there is unlikely to be any competition, and independent scrutiny of service provision is difficult in the context of a small population. The experience of Finland is interesting in this context given their attempt to implement a purchaser/provider separation at Municipality level, several of which had populations of 5,000 or less. In practice, service provision tended to be delivered by one monopoly provider, and the government concluded that municipalities were too small a unit to make the purchaser/provider split effective.[24] In Anguilla, a Health Authority was established for a population of 15,000 residents. However, through informal discussions with the island, they would consider this resident population to be the minimum size to justify a separate legal entity.

It is worth considering other organisational forms for NHI in Montserrat. One idea would be to have a service delivery unit within the Ministry which was obliged to work within a fixed budget each year and which produced, for example, an annual report on service provision and the use of insurance monies.

A variation of NHI would be to restrict the scheme to off-island care. This would improve equity and allow for a genuine purchaser/provider split. As described in 6.2.1, overseas care for

[22] Robinson R, Jakubowski E, Figueras J. (2004) Organization of purchasing in Europe. Purchasing to improve health systems performance. Berkshire: Open University Press;. p. 11–43.

[23] Enthoven A.(1993) The history and principles of managed competition. Health Affairs 1993;12:24–48.

[24] L.-K. Tynkkynen et al. (2013) Purchaser–provider splits in health care—The case of Finland, *Health Policy*,*p* 111 221– 225

patients could be outsourced to a third-party who will organise and be able to deliver these overseas referrals more effectively due to their increased purchasing power.

In summary, for a population as small as Montserrat's, common sense needs to prevail about how NHI could work. The challenge is to enhance independent decision-making and an NHI "character", without escalating administration costs. At 16%, expenditure on central administration is already high and certainly should not increase. So, when considering NHI in Montserrat, the key questions are:

- Is it realistic to use existing government-wide revenue collection mechanisms such as the Department for Social Security and Pensions to collect premiums earmarked for health?
- Is it necessary to establish a new board or authority? What would be the advantages? Possible advantages are that the authority could work outside some civil service rules (e.g. related to employment) and that the authority could perhaps focus more on evidence-based health care delivery, more removed from political vagaries.
- What would be required to establish a new authority or service delivery unit and would this be feasible? A key consideration is whether there would be sufficient workforce resources and capability to resource this. For example, the Strategic Management and Administration Directorate of the MoHSS is currently resourced by nine members of staff, including the Permanent Secretary.[25] If it is not possible to re-allocate some of these staff to the authority or service delivery unit, additional costs will be incurred in appointing to these new posts and the expertise required may have to be sourced from overseas.

6.3.4.2 Examples of NHI in practice

Some other island economies in the Caribbean have followed a similar route. Figure 2 sets out a case study of National Health Insurance (NHI) that has been implemented in The British Virgin Islands. This case study outlines the key features of the scheme. Further information is publicly available at http://www.vinhi.vg/.

Figure 2: National Health Insurance Case Study

The BVI NHI is the financing and purchasing mechanism for facilitating equitable access to a stated schedule of benefits. It allows lifetime health insurance coverage for all beneficiaries. It performs its functions with its own financing, independent of the Social Security Funds. The Ministry of Health and Social Development maintains ultimate responsibility for monitoring the standards of healthcare services throughout BVI.

The NHI is funded by contributions from employers, employees, self-employed persons, employees on behalf of unemployed spouses, pensioners with other sources of income, and the government. The government contributions cover:

- All children - from new-born to age 18 years and up to 25 years, once enrolled in full time education at an accredited educational institution. This includes children with special needs.
- Indigent persons (as defined by the Social Development Department or the established National Standard Requirement)
- 'Wards of the State', such as residents of the Rainbow Children's Home, the Adina Donovan Home for the Elderly, the Elderly Home on Virgin Gorda and Prisoners.
- Risk Officers including: Police, Customs, Immigration, and Fire.

[25] Comprises Permanent Secretary, Chief Medical Officer, Health Planner/ Epidemiologist, Assistant Secretary (x2), Health Information Officer, Clerical Officer (x3). Source: MoHSS (2017) Staffing profile and payscales

The NHI benefits package offers healthcare services at all levels; primary health care, specialised secondary care, and specialised tertiary care. The benefits provided cover preventative, promotive, curative, and rehabilitative health services.

Table 9: NHI Coverage

Benefit package		Examples of non-coverage
• Primary care and specialist visits • Preventative care • Hospital room and board • Surgery • Diagnostic procedures • Intensive care • Casualty and emergency care	• Pharmaceutical services • Mental health • Dental care • Eye care • Approved prosthetic devices • Overseas care, if the specialist is not available locally • Rehabilitation	• Cosmetic surgery that is not medically necessary, for instance, Botox, liposuction, and face-lifts. • Cosmetic dental procedures such as dental whitening. • Experimental medications, herbal medications, or acupuncture. • Diagnostic procedures outside of the approved guidelines and protocols. • Homeopathy, chiropractic, and herbal medicine • Expenses beyond the coverage limits stated in the benefit package

Source: http://www.vinhi.vg/
National Health Insurance- Government of the Virgin Islands

The contribution rate is 7.5% of insurable income through shared contributions: 3.75% paid by the employer and 3.75% paid the employee. The employer deducts contributions from insurable wages or salaries, and sends it, along with their contribution, to the NHI.

- The minimum wage is presently $4.00 per hour, which equals $640.00 per month. Employees and employers in this category would each pay $24.00 per month (total $48 per month).
- The maximum amount on which NHI premiums will be assessed is two times the upper wage limit for Social Security contributions[26], which presently equals $6,716.68 per month. Therefore, the maximum amount payable by employees and employers would be $251.87 each per month (total $503.74 per month).
- Self-employed persons will be required to contribute 7.5% of their stated income (as employer and employee).
- An employed person will be required to contribute 3.75% of his/her salary on behalf of his/her unemployed spouse.

Members and/or their healthcare provider will have 48 hours from the start of the emergency and/or hospitalization to contact the NHI, which will provide further assistance during care. Emergency care accessed at an overseas provider is subject to a 20% co- insurance rate.

The co-insurance is a fixed percentage of the cost of benefits and varies according to the provider. The NHI only provides coverage for overseas care without preapproval in medical emergencies. Emergency care will be covered by the NHI, less any applicable co- insurance.

Table 10: NHI Coverage

General policy terms	On-island public sector	On-island private sector	Overseas
Lifetime limit- $1,000,000			
Deductible (in-network)	$0	$0	$0
Deductible (out of network)	-	£0	$0 (applicable only to emergency and cases pre-approved)
Co-payment (in-network)	5% Peebles hospital	10%	20%
Co-payment (out-of-network)	-	20%	40%

[26] The Social Security's annual ceiling is based on the changes in the annual Consumer Price Index

In-network providers: public healthcare facilities (Peebles Hospital, community clinics); contracted private healthcare facilities (on-island); contracted overseas healthcare facilities
Out of network providers: non-contracted private healthcare facilities (on-island); non-contracted Overseas healthcare facilities
Source: http://www.vinhi.vg/ National Health Insurance- Government of the Virgin Islands

Whilst this system is operational across BVI, challenges remain, particularly, with regard to rising private sector expenses: and so it is important from the start to have clear rules about which health facilities members could use and to recognise that implementing this system of revenue still requires inputs in terms of strategy and monitoring.

If the Government of Montserrat were to adopt a similar approach to BVI, Figure 3 provides a simple illustration of the level of contribution that would need to be made by employers and employees to manage future healthcare costs.

Figure 3: Illustration as to level of contribution required

To meet the future healthcare operating costs of XCD $17.6 million, the following provides an illustration based on adopting a similar approach as that taken by BVI.

	% of workforce	Contribution	Monthly salary (XCD $)	Monthly contributions (XCD $)
Minimum salary	25%	5.50%	640	22,000
Average salary	60%	5.50%	2,500	206,250
Maximum salary	15%	5.50%	8,000	165,000
Dependents	50%	3.50%	2,500	109,375
Total				502,625

Maximum salary capped at two times the upper wage limit for Social Security contributions.
Based on a potential workforce of approximately 2,500 employees.

On the assumption that those working pay a 5.50% contribution, which could be split equally between an employer's contributions and a contribution on employee's income, and that employed persons with a dependent (unemployed spouse) would contribute a further 3.50% of their income, then the monthly total generated would equate to XCD $503,000. Over the year, this would equate to XCD $6.0 million. This would support the funding of the full costs of care on-island and off-island as defined within the essential package of care. *Note that this assumes that continued support through Financial Aid at a level constant with the current allocation*. The government would cover the costs of NHI for those residents who are exempt and unable to pay through the general taxation system.

This provides just one illustration of how NHI could be established. More work would need to be undertaken by the Government to determine the level of contribution being made by individuals and families and any co-payments needed to meet the overall costs of healthcare.

7 Conclusion & recommendation

We have seen that to achieve the improvements in healthcare, which will improve the quality of care provided to residents on-island, the future estimated costs of the essential package of care accessible to all residents will exceed the current budget allocation.

Whilst the future costs of healthcare will increase, there are, however, some initiatives which the Government of Montserrat and its MoHSS could implement early on to achieve efficiency savings. Chief amongst these is the recommendation to contract with a third-party administrator who could manage the off-island overseas referrals. Currently, these are managed by clinicians and administrative staff and dealt with on a case-by-case basis with individual providers. The MoHSS therefore has limited negotiation and purchasing power, the result of which is that higher costs are paid. Whilst there is a cost associated with this type of arrangement, outsourcing to a third party, who are well versed in handling this type of arrangement with others, could achieve dividends for the MoHSS and reduce the overall costs of care overseas.

The Government of Montserrat also needs to begin to think about how it will tackle rising levels of non-communicable diseases. In the long-term, work to tackle obesity, smoking and limited exercise, plus good management of diabetes and hypertension, can lead to efficiency savings and needs to be thought about. However, this will not bring out the short-term financial savings being discussed here.

To meet the future costs of recurrent healthcare expenditure; estimated at around XCD $17.6 million; efficiency savings alone would not close the financial gap between current available finances and the cost of the future provision of healthcare services (XCD $3.94 million after application of potential efficiency savings).

Even assuming that a significant proportion of funding (around 50% or more) would continue to be received from Financial Aid, the remainder of the funding would need to be raised from on-island residents through either current taxation and user fees or through alternative financing methodologies. Within our report, we have highlighted some of the shortcomings with the current system; the inefficiencies and inequities that user fees and co-payments can create, particularly amongst those on low incomes who have the least protection. The current revenue collection processes are inadequate and many of the fees owed are not collected, with limited penalties imposed on those who do not pay.

Therefore, it is recommended that the way in which these revenues are generated on-island in the future be reviewed and alternatives considered. There are a number of recognised methods for funding healthcare services which are used around the world. These include:

- User payments (out of pocket expenses)
- Private medical insurance
- General taxation
- National health insurance (social insurance).

Some systems include a mixed approach of these methods; as is the case currently in Montserrat.

There are advantages and disadvantages associated with each of these methods and these are outlined in Table 11 below.

Table 11: Health System Financing Options

Option	Advantages	Disadvantages
User Fees	Can encourage a more responsible use of services	Excludes those who need the service but cannot afford to pay Tends to be a large number of exemptions requiring funding from general taxation Preventative service may lose out in funding to acute/curative care services Often raises only a small proportion of full costs, yet has high administrative costs Associated with debts that push some families into poverty and prevent some families from escaping poverty
Private medical insurance	Weighting of premiums according to use resulting in a deterrent effect on demand The costs of every aspect of care are made more explicit Care may be managed by insurance companies so that only effective forms of treatment are used	Equity of coverage is negatively impacted - those that most need care cannot afford it. There still needs to be a system that covers those who cannot afford insurance May increase demand as individuals seek to get what they pay for (typically, results in a high proportion of GDP spend on healthcare) Preventative service may lose out in funding to acute/curative care services Not all the money paid in goes on healthcare – profit margin Individuals have to seek prior approval for spending Individuals may shop around until they get what they want – demand may increase among some sectors
General taxation	Generally regarding as being efficient, delivering strong cost containment Forces prioritisation and facilitates trade-offs Ensures universal access to services regardless of ability to pay Low administrative costs Minimises distortions in particular sectors of the economy since it draws revenue from a wide base	Government has a strong capacity to control costs which could result in poor services Can result in overuse and high expectations by patients and public Degree of individual choice tends to be limited Can be vulnerable in times of economic and fiscal difficulties
National Health Insurance (NHI)	Prepaid system which pools health risks across individuals Ensures universal access to services regardless of ability to pay Low administrative costs Funding of health services tends to be removed from the political arena Payment by employers and/or employees may act as an incentive to modify behaviours i.e. health and safety	Can result in overuse and high expectations by patients and public Degree of individual choice tends to be limited Can be vulnerable in times of economic and fiscal difficulties

Given the significant shortcomings associated with user fees and private medical insurance and the inequities which both these systems create, these have been discounted as the principal means for raising the revenues to meet the future costs of healthcare services. That is not to

imply that we are suggesting that there would be no user fees or co-payments for some elements of services in the future or that individuals could not continue to seek private medical insurance to increase their choice in providers; it is simply that these two methods would not comprise the principal way in which revenue is generated.

This, therefore retains general taxation and NHI as the two potential methods to pursue. Both are similar where it is assumed that coverage would be provided to everyone, with premiums for economically weak families subsidised from the general revenues. The fundamental difference between the two methods lies in their level of separateness and autonomy. Under general taxation, the revenues raised go to the Treasury and are then allocated across the public sector ministries. There are various ways of organising NHI, but in some form funds are raised directly through contributions from employers and employees and, in effect, ring fenced to healthcare spending which then becomes a transparent tax. Government pays the premiums for identified groups who cannot afford to pay.

No system is ever perfect though, and for both general taxation and NHI, there is downside in that, given that the service is free at the point of delivery for all residents, there is potential for overuse.

In considering the progression from general taxation to NHI, the Government of Montserrat will need to systematically assure itself that the benefits of implementing this type of arrangement would be worthwhile and achieve added benefits for the population of Montserrat.

There are examples elsewhere in the Caribbean where this form of mechanism has been introduced and therefore, there are lessons which can learnt by the Government of Montserrat (see BVI case study above).

7.1 Route map for introducing revisions to the health financing system

The timeline for implementation of the proposed financing option and the possible introduction of a National Health Insurance scheme could take up to 8 years based on the experience of others. Detail of the task to develop and implement this are shown in the table below, Table 12.

Table 12: Tasks and timeline for introducing a new financing system

Task	Timeline
Cabinet approves a one year plan of work to show how NHI could work and options for variations of NHI	2018
Site visits to BVI and Anguilla to understand their experiences of a third party administrator and NHI	early 2018
Gather more data about the costs of off-island care	2018
Definition of the package of cover and those conditions which are excluded	late 2018
Appoint a third party administrator for overseas referrals	mid 2018
Cabinet makes a final decision regarding NHI	2019
Replace user fees with increased taxation	
• Identify what additional revenues need to be raised through general taxation	2019
• Consultation exercise with the residents of Montserrat	Late 2019
• Implement new tax rules	2020
• Repeal the user fees within the Public Health Act	2020

Task	Timeline
Development of NHI Strategy (if decision is agreed by Cabinet)	
• Development of the contributions by employers, employers, self-employed and those pensioners with additional sources of income	2022
• Consultation exercise with the residents of Montserrat	late 2022
• Agreement of the management of the NHI scheme by the Government of Montserrat e.g. Social Security to collect contributions, MoHSS to allocate these, service delivery unit within MoHSS or separate health authority to deliver service offer	2023
• Draft the changes in the legislation. For example, new amendment to the Social Security Act	2024
• Establishment of relevant management and administrative functions	late 2024
• Establish date for introducing the new mechanism and achieve sign-up to the scheme by residents	late 2024
• Introduce the National Health Insurance scheme	2025

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External Assistance Requirements

3 November 2017

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1 Introduction

The outcome of the Health System and Financing Review has identified recommendations to improve the quality and equity of access to healthcare services both on Montserrat and off-island. Implementing these recommendations will require time and attention. Whilst some can more easily be achieved through DFID and the Ministry of Health and Social Services (MoHSS) staff, there are some actions which may require dedicated and technical capacity for their delivery, of which additional external assistance may be required.

The review has made recommendations concerning:

- The future configuration of clinical services on Montserrat, including the recruitment of additional clinical staff, both permanent on-island and visiting specialists
- The development of a new replacement hospital for Glendon Hospital
- The introduction and implementation of a health financing strategy which would provide access to an essential package of care that is more equitable to all residents of Montserrat.

Detailed below, we have outlined those specific actions associated with each of the recommendations and considered where best the responsibility for developing and implementing these lies; outlining the role of additional external assistance where appropriate.

2 Development and implementation plan for actions for service changes

The table below sets out the specific actions in relation to the future organisation and configuration of clinical services.

Table 1: Recommendations for service change

Service	Recommendation
Prevention and health promotion	• Organisational restructuring of existing resources into a Public Health Unit • Improved coordination of funding into prevention and health promotion • Greater collaboration between the health and education sectors
Primary care	• Appointment of a Director of Primary Care • Consolidation of services onto fewer clinic sites • Redeployment of clinic staff into the new clinic arrangement together with the redeployment of existing medical staff into the DMO role • Introduction of a patient record system
Dentistry	• Re-establishment of the visiting orthodontist/specialist dental surgery service and development of a pool of locums • Improved procurement service • Introduction of a patient record system
Environmental services	• Appointment of additional staffing to vacant posts • Improvements in IT
Mental Health	• Development of more appropriate secure facilities for short term rehabilitation • Improved in-reach into schools • Increased occupational therapy services • Improved implementation of the off-island referral system
Secondary care	• Increased presence of visiting specialists and development of a pool of locums for cover • Contractual relationship with a select number of off-island providers for both elective and emergency evacuations • Improved access to radiology services, including commercial relations with a private provider • Improved public and staff awareness regarding the use of public and private pharmacies

In the main, most of these service change recommendations sit within the operational remit of the MoHSS; particularly those centred on the additional recruitment of staff (permanent, visiting and locums) and of improved coordination of service provision.

Clearly, however, more work needs to be done by DFID and MoHSS in agreeing the site locations for the future configuration of the three clinics, which limit the impact on access by patients, and then in preparing and readying these clinics; including consultation with staff, development of new staff rotas and a public awareness campaign. For those who would need to travel further to access clinics, publicly funded transport arrangements may need to be considered. This could mean the use of existing school bus services across the island (before and after school pick-up times) or through an alternative patient transport system. Work would need to be undertaken to assess the likely impact on patients, and the number of patients who

would need to rely on the support of this service, to then develop the transport route and timetable through coordination with the clinics. This may require some external support.

Improvements in information technology remain an issue across all clinical service areas and the implementation of a single dedicated patient record system, linked across the clinics and hospital, would significantly enhance the co-ordination and safety of patient care. It is therefore likely that additional external assistance would be required to support the development of the specification of this system, its procurement, and oversight in its installation by the selected market provider. This support would best be procured through an open tender procurement process, supported by the Ministry of Finance and Economic Management's (MoFEM) procurement department. This tender's terms of reference would focus on the specification of support to develop the business case and specification for a new system, and establish and manage the procurement process of a preferred supplier.

There is agreement that the current ad hoc arrangements with off-island providers is costly to the MoHSS and does not provide best value for money or make best use of medical staff's time. To provide greater buying power to the Ministry and reduce the administration related to these off-island referrals, it is recommended that this is outsourced to a third party administer; similar to the arrangements in some other Caribbean islands. There are lessons to be learned from other countries, including the British Virgin Island (BVI) and Martinique, who have gone down the route that the MoHSS should look to explore, together with the possible support of PAHO. Again, detailing the specification of the service required, the procurement process and undertaking the contractual negotiations would require wider support across the Government departments with some possible support required externally, depending on the level of confidence within the Government to procure this service.

Finally, there have been ongoing discussions with the Belmont clinic in Antigua of their aspirations to support the MoHSS in improving access to residents to imaging services. The Belmont clinic has previously proposed providing access to mammography services on-island, together with the potential future provision of a CT scanning service, bringing the older equipment to Montserrat and providing a service adjacent to local hospital services. The MoHSS should continue to pursue these negotiations and establish the contractual arrangements under which this could be achieved, understanding the likely costs that would be incurred by the MoHSS. On the assumption that both parties are satisfied with the proposed arrangement, formal contract negotiations should be established through the support of the MoFEM procurement department.

3 The development of a new hospital

Our review has established the need for a new 20 bed hospital to replace the existing temporary accommodation at Glendon Hospital. Procuring the construction of a new hospital is a substantial task and one which is likely to require significant additional support to deliver. The main tasks associated with this new build are set out in the table below.

Table 2: Development of new hospital build

Task	Requirements
Business Case	• Development of a business case which confirms the scale and scope of services, site location, environment and social impact assessment, financial costing
Design	• Architectural support to design the new hospital build
Construction of building	• Procurement of a construction company for the new hospital build
Equipment	• Procurement of clinical and non-clinical equipment
Certification	• Independent certification of new build
Project Management	• To support the business case development and oversee the construction, sign-off and handover phases

Much of the work within the Health System and Finance Review has laid the foundations for the MoHSS to develop its health strategy for the construction of the new hospital.

Following this, a Business Case will need to be prepared to:

- Determine the preferred location of the site for the new hospital;
- Assess the impacts of various site location options, both environmentally and socially
- Finalise the Schedule of Accommodation
- Determine the likely cost of construction
- Establish the equipment list and Bill of Quantities
- Appraise potential financing options to raise the capital.

We understand that this process will be led by DFID in close collaboration with the Government of Montserrat.

Upon finalisation of the finalised Business Case between the Government and DFID, the procurement process for the architectural design and construction of the new hospital can commence. As with the Business Case, this will be led by DFID in close collaboration with the Government of Montserrat.

Additional external assistance may be required to support some elements of this.

4 Healthcare financing arrangements

One of the most significant changes recommended through our review is the consideration for the introduction of a new National Health Insurance system; replacing over time the system of user fees and use of general taxation. Building on the experience of others such as the recent example of BVI, is a key phase in this work and we would encourage the Government to reach out to BVI in understanding how this was implemented and the options that they considered.

The Health Financing Strategy set out a route map for introducing this system and this is detailed below in Table 3.

Table 3: Tasks and timeline for introducing a new National Health Insurance system

Task	Timeline
Cabinet approves a one year plan of work to show how NHI could work and options for variations of NHI	2018
Site visits to BVI and Anguilla to understand their experiences of a third party administrator and NHI	early 2018
Gather more data about the costs of off-island care	2018
Definition of the package of cover and those conditions which are excluded	late 2018
Appoint a third party administrator for overseas referrals	mid 2018
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• Repeal the user fees within the Public Health Act	2020
Development of NHI Strategy (if decision is agreed by Cabinet)	
• Development of the contributions by employers, employers, self-employed and those pensioners with additional sources of income	2022
• Consultation exercise with the residents of Montserrat	late 2022
• Agreement of the management of the NHI scheme by the Government of Montserrat e.g. Social Security to collect contributions, MoHSS to allocate these, service delivery unit within MoHSS or separate health authority to deliver service offer	2023
• Draft the changes in the legislation. For example, new amendment to the Social Security Act	2024
• Establishment of the relevant management and administrative functions	late 2024
• Establish date for introducing the new mechanism and achieve sign-up to the scheme by residents	late 2024
• Introduce the National Health Insurance scheme	2025

Achieving this scale of change within the timescales set out above would require significant attention and support, legislative changes and engagement with residents. Much of what needs

to be done would sit with Government departments; most prominently the MoHSS and the MoFEM, but would also require support from the wider Cabinet.

Given the technical requirements of establishing this significant change, it is anticipated that additional external assistance may be required from actuarial/financial organisations specialising in this, together with legal support in drafting changes to the current legislation. There would also need to be oversight provided by the Government.

A high preliminary phase of work has been undertaken through this review. However, we would recommend that an actuarial or finance organisation be commissioned to support Government in calculating the contribution required from residents to cover the costs associated with the essential package of care, and in determining any options in which this mechanism should operate e.g. similar to how social security funding is currently managed or through an alternative route such as an independent insurance company. If the recommendation is that the financing mechanism should operate in a similar way to social security, then our recommendation would be that the MoFEM take responsibility for developing and implementing this mechanism. If an alternate route is recommended with the potential for engaging an insurance company to manage this, then the affordability of such a scheme would need to be understood and, beyond this, a procurement exercise undertaken to select a preferred provider.

Regardless of the recommendation to introduce and implement a National Health Insurance system, the finance strategy has recommended the appointment of a third-party administrator to manage off-island referrals. This is key in providing the Government of Montserrat with the most economically advantageous position in negotiating with off-island providers and in reducing the administrative burden on clinical staff. As outlined in Section 2, we would recommend that the MoHSS seeks to procure the services of a third-party administrator through an open procurement exercise with the support of PAHO.