

CHAPTER 4 - CASE FOR CHANGE

4.1 DRIVERS FOR CHANGE

4.1.1 The key drivers for change are summarised in the table below and have been categorised under the following headings:

- policy drivers;
- estate condition and
- efficiency gains.

4.1.2 The table summarises the drivers for change and how they relate to the programme objectives and also whether addressing the drivers for change address local, Sussex-wide and/or regional priorities.

Figure 4.1 Drivers for Change

Drivers	Fit for Purpose facilities	Neuro-sciences	Cancer	Trauma	Research & Training
Key policy drivers					
<i>NHS Operating Framework 2011/12</i>				✓	✓
<i>Darzi High Quality Care for All</i>	✓				
<i>Improving Outcomes: A Strategy for Cancer 2011</i>			✓		
<i>Cancer Reform Strategy</i>			✓		
<i>Privacy and Dignity</i>	✓				
<i>NCAG Regional Networks for Major Trauma</i>				✓	
<i>Healthier People, Excellent Care</i>		✓		✓	
<i>Best Care, Best Place</i>		✓			
<i>Sussex Tertiary Commissioning Strategy</i>		✓	✓	✓	
<i>Fit for the Future</i>		✓			
Estate Condition	✓	✓	✓		
Efficiency Gains	✓	✓	✓	✓	✓

Priorities					
Local	✓	✓	✓	✓	✓
Sussex	✓	✓	✓	✓	✓
Regional		✓	✓	✓	✓

4.1.3 The Trust is seeking to address a range of issues through the 3Ts development that will improve services to the local population. These include:

- patient care and access;
- privacy and dignity issues;
- cleanliness and infection management and control;
- improved clinical networks;
- improved integration and efficiency;
- ageing buildings unable to offer fit for purpose accommodation;

- morale and confidence;
- energy efficiency, carbon footprint and backlog maintenance and
- disparate sites.

4.2 **Key Issues And Drivers**

4.2.1 The key issues and drivers are set out in detail below. This describes the current issues that the Trust and its local commissioning partners have in terms of the nature, quality, scale and type of services that need to be delivered and the environment from which they are provided.

General and Elderly Medicine – Summary

4.2.2 The Trust provides an integrated General & Elderly Medicine service for its local populations of Brighton & Hove and Mid Sussex. This includes the range of medical specialties: medicine for the elderly, chest/respiratory medicine, stroke medicine, diabetes & endocrinology, rheumatology and general medicine.

4.2.3 For the Brighton & Hove population, the service is provided from the Royal Sussex County Hospital campus: inpatient wards are located in the Barry building and most outpatient services are provided from the Main Outpatient building. Elderly care and respiratory medicine outpatients are currently provided from the Brighton General Hospital site.

4.2.4 The service enjoys strong academic links with the Brighton & Sussex Medical School and the Universities of Brighton and Sussex. Elderly care and community medicine is one of the School's research priorities. This partnership allows research, teaching and training to include the sickest patients, and has led to the establishment of the Brighton Centre for Ageing Research at the School.

The Barry Building

4.2.5 The Barry Building on the Royal Sussex County Hospital campus was erected in 1828; the adjoining Jubilee Building in 1887. These buildings currently house the medical, elderly care, cancer, infectious diseases and HIV inpatient wards as well as the main Imaging department and the cardiac investigations service. The Barry Building is one of the oldest buildings in the NHS currently providing inpatient accommodation. The case for change is that this building stock is ageing, cramped and wholly unfit for modern clinical usage. Specifically:

- it fails to provide the appropriate level of patient privacy and dignity, in particular in the number and location of bathrooms and toilets. In many wards and in the main Imaging department patients are required to cross main corridors to access the bathroom/toilet;
- maintaining an appropriate level of cleanliness and infection control in a building of this age represents a significant daily challenge. The Barry Building has 10 single rooms (5%), requiring clinical staff to juggle, for example, the needs of patients who are dying with those who are immuno-compromised or potentially infectious;
- the deleterious effect on staff morale, recruitment and retention, and on the confidence of patients and visitors in the clinical services provided from this building cannot be under-estimated; and

- the general medical and elderly care wards are small (fewer than 20 beds, on average) and inefficient to staff.

Jubilee Building

- 4.2.6 The Jubilee Building was erected in 1887, predating the discovery of X-rays and invention of the sphygmomanometer (for measuring blood pressure). This building currently houses the cancer, infectious diseases and HIV inpatient wards.

Figure 4.2 Barry Building



Accommodation no longer Fit for Purpose

- 4.2.7 The Barry and Jubilee buildings are over 180 and 120 years old respectively. Although clinical staff work hard to maintain standards of patient care, this is undermined by accommodation that is cramped and poorly designed for modern patient use. Specifically:

Patient Privacy & Dignity

- 4.2.8 There are currently only 10 single rooms in the Barry Building (5% of the beds) and no negatively-pressured rooms. Clinical staff must therefore prioritise patient needs, for example dying patients who wish to move to a single room against patients who are immuno-compromised or have a potentially infectious pathology and should be moved out of the shared ward bays for reasons of infection prevention and control. In the 3Ts development 70% of the beds on the medical and elderly care wards will be provided in single rooms.

- 4.2.9 The number of bathrooms and toilets is also inadequate. In the Barry Building the ratio is one toilet to four patients; in the 3Ts development this will be one toilet per 1.7 patients in the medical and elderly wards whilst all the single rooms will have en suite toilets/bathrooms.
- 4.2.10 The layout of the building is no longer fit for modern patient care. Bed spacing is significantly below the current standard (and is less than the spacing suggested by Florence Nightingale). The designation of male/female bathroom facilities often means that female patients have to walk past male bays to use the toilet or bathroom and vice versa. This does not allow appropriate visual privacy in the ward environment. Three wards are bisected by main thoroughfares that patients are required to cross in order to use the bathroom or toilet. In the 3Ts development all single rooms will have en suite bathrooms/toilets and the multi-bed bays will have integral bathrooms/toilets so patients will not need to leave the bay to access them.

Figure 4.3 Barry Building: Internal Layout



Cleanliness and Infection Management & Control

- 4.2.11 Infection management and control is the Trust's number one priority¹. Thanks to the work of the whole healthcare team, the number of ward patients with MRSA has dropped by 50% and the number of patients with hospital-acquired *C. difficile* by 10% in 2010/11.
- 4.2.12 The most recent (July 2011) inspection by the Care Quality Commission (CQC) found that the RSCH complies with Outcome 8 (cleanliness and infection control). However in spite of best efforts by staff, the age and condition of the Barry Building undermine further improvements in infection prevention and control. The CQC inspection noted the 'challenging constraints of the building', which include an insufficient number of single rooms and no negatively-pressured isolation rooms.

¹ Annual Plan 2010/11, Brighton & Sussex University Hospitals Trust (2011)

Efficient Patient Care

- 4.2.13 The wards in the Barry and Jubilee Buildings are small (fewer than 20 beds per ward on average in the Barry Building, fewer than 9 beds per ward in the Jubilee Building):-

Figure 4.4 Bed numbers in Barry and Jubilee Buildings

Building	Ward	Number of Beds
Barry	Jowers	14
	Overton	14
	Baily	16
	Bristol	21
	Vallance	20
	Lister & Fleming *	21
	Chichester	22
	Solomon & Donald Hall	23
	Catherine James & Egremont	25
Jubilee	Howard 2	6
	Howard 1	9
	Grant	11
TOTAL		202

* Lister & Fleming Now closed - but open at time of modelling

- 4.2.14 These wards are inherently inefficient to staff, e.g. each ward requires a minimum of two registered nurses per shift to ensure appropriate checking of Controlled Drugs, to allow cover for breaks and in the event of a patient incident. Planning for the 3Ts development uses a standard 32 bed ward template.
- 4.2.15 Small wards also affect patient care. Ensuring appropriate gender-segregation in wards that are small and have only 5% single rooms often requires staff to move patients between wards. This is not best infection control practice, is disorienting for the patient, is a poor use of nursing time and can extend the patient's length of stay.
- 4.2.16 Small wards and the frequent movement of patients between wards make it harder to bring patients with common conditions together in a single specialty area. It is then more challenging for ward staff to develop the appropriate specialty expertise and disperses specialty-based teaching and training.

Morale and Confidence

- 4.2.17 Independent scrutiny has demonstrated that clinical outcomes and the quality of care provided to patients in the Barry Building are of a consistently high standard, despite the extreme limitations of the physical accommodation. However, working continuously in a cramped environment that is no longer fit for purpose and is unable to offer patients the appropriate standards of privacy and dignity inevitably affects staff morale and the Trust's ability to recruit and retain clinical staff.
- 4.2.18 The age and condition of the building also has negative effects on patients' and visitors' confidence in the clinical services provided from this accommodation. The urgent need to replace this substandard accommodation with modern facilities that match modern patient services has universal support.

Sussex-Wide Clinical Infection Service

Epidemiology and Clinical Network

- 4.2.19 The 2008 review² of the *National Strategy for Sexual Health and HIV*³ estimates that 73,000 people are living with HIV in the UK, including one-third who are unaware of their diagnosis. 52,000 people accessed care for HIV in 2006, a tripling in numbers since 1997. The increase was greatest in London but the largest proportionate increases were outside London. The review also reports that 5% of women and over 8% of men aged under 25 test positive for Chlamydia when screened.
- 4.2.20 Brighton & Hove has one of the highest per capita rates of HIV infection in the UK. The Trust's GUM and HIV service is one of the largest and busiest in the UK, with over 1,700 patients receiving regular follow-up. The department enjoys an international reputation as a Centre of Excellence.
- 4.2.21 A Sussex-wide HIV Clinical Network has been established and is in the early stages of identifying priorities and formalising its governance structures. Across the network, some inpatients are currently managed in smaller acute hospitals that are not able to offer the specialist multidisciplinary expertise in HIV on a 24/7 basis. As part of the development of the network, it is anticipated that all HIV inpatient activity across the Region (principally from Sussex and Surrey) will be centralised at the Royal Sussex County Hospital in future, in line with national clinical guidelines:

Clinical care for diagnosed HIV infection in adult patients should be delivered through managed clinical networks each covering a defined geographical area and group of NHS organisations. These networks should comprise two types of clinical services: HIV units providing outpatient care for the majority of patients with uncomplicated HIV infection; and a single-site or virtual/cluster HIV centre within each network providing services for patients with more specialised needs, including complex outpatient care, inpatient care and referral/advice services.⁴

² *Progress & Priorities - Working Together for High Quality Sexual Health: a Review of the National Strategy for Sexual Health and HIV*, Medical Foundation for AIDS & Sexual Health (2008), commissioned by the Independent Advisory Group on Sexual Health and HIV

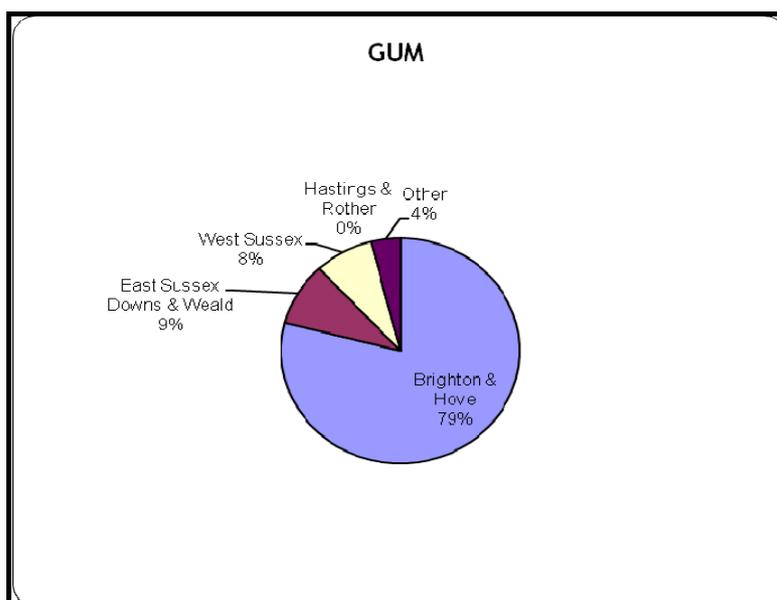
³ *Better Prevention, Better Services, Better Sexual Health – the National Strategy for Sexual Health and HIV*, Department of Health (2001)

⁴ *Standards for HIV Clinical Care*, British HIV Association, Royal College of Physicians, British Association of Sexual Health and HIV, British Infection Society (2007)

HIV & GUM Service

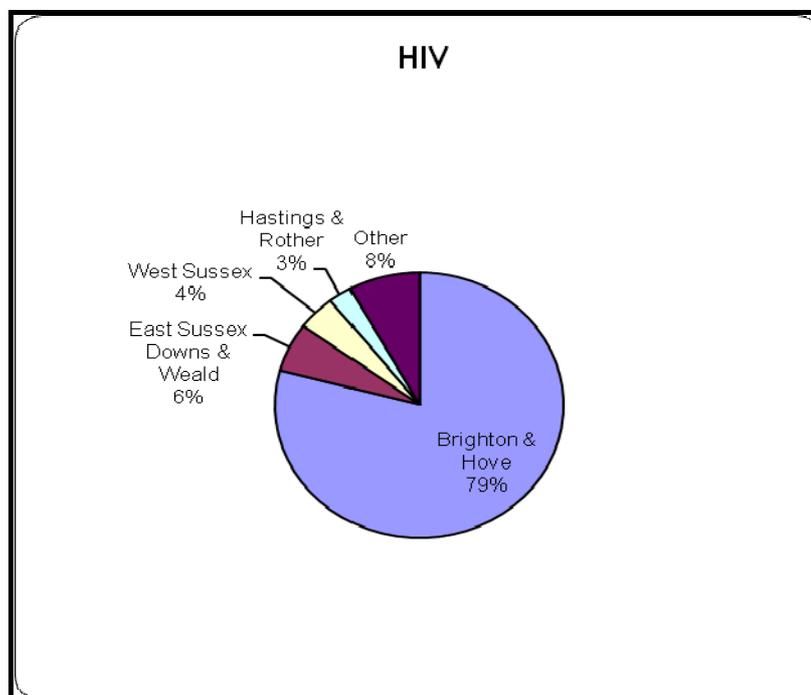
- 4.2.22 The Trust's HIV & GUM services are currently provided from a number of locations across and adjacent to the Royal Sussex County Hospital campus: GUM (Claude Nicol Centre) and HIV Outpatients (Lawson Unit) are located in the Main Outpatients building, and inpatients with HIV are treated in the Jubilee Building (Howard 2 ward, 6 beds). The Clinical Trials Unit (Elton John Centre) is located in Sussex House, a short walk from the main campus. Although these services work together closely, their clinical and academic/research expertise is inevitably dispersed.
- 4.2.23 The service provides specialist clinics for adolescents, gay and bisexual men, HIV in pregnancy, and for patients with chronic genital problems, psychosexual problems and patients co-infected with hepatitis B and C. It has run a number of successful outreach programmes, including testing for syphilis and HIV, and hepatitis B vaccination for men who have sex with men.

Figure 4.9 Trust GUM Catchment



Source: FS01 New GUM attendances (Oct 2008 to Mar 2009)

Figure 4.10 Trust HIV Catchment



HIV/GUM Research

- 4.2.24 The Trust's HIV/GUM service participates in and has a reputation for providing high quality data to a wide variety of collaborative studies, working on phase II to IV clinical trials in the development of new treatments, treatment strategies and management of associated toxicities with pharmaceutical industry, National Institute for Health Research, Medical Research Council and European Union funded studies. The service also leads on a programme of investigator-led research around HIV transmission and transmitted drug resistance originally funded from a grant from BSUH/BSMS.
- 4.2.25 Infection & inflammation is one of Brighton & Sussex Medical School's key research priorities and is a particular research strength of the University's School of Pharmacy. The two Professors and one Senior Lecturer, who hold honorary Consultant posts with the Trust's Infectious Diseases service, have led the rapid evolution of the Infectious Diseases service within the Trust.

Infectious Diseases

- 4.2.26 The Infectious Diseases service manages the treatment and care of patients with predominantly infectious pathologies, including those with *C. difficile*. It runs a weekly outpatient clinic, offers an augmented clinical consultation service and provides telephone advice to GPs.
- 4.2.27 In January 2008 the Trust created a *Clostridium difficile* isolation unit on Grant Ward (Jubilee building). This 11 bed unit is a key strand in the Trust's strategy for

infection management and control and cohorts patients with *C. difficile* and associated diarrhoea. The ward receives patients principally from the medical and elderly care wards but also from other specialties and directly from Primary Care. There are currently no negatively pressured rooms on the Royal Sussex County Hospital campus; this has been identified as a significant clinical risk.

Local Services: Acute Brain Injury Centre

Networked Provision

- 4.2.28 The clinical and economic case for the management of patients with stroke as an emergency is now well established - and this is an accepted case for change:

If stroke were treated as an emergency – including delivery of thrombolysis through specialist centres at rates currently delivered in other countries – then over 1,000 stroke victims a year would regain independence rather than die or be left dependent on others because of significant disability⁵.

Quantitative estimates of the pace of neural circuitry loss in human ischemic stroke emphasize the time urgency of stroke care. The typical patient loses 1.9 million neurons each minute in which stroke is untreated⁶.

- 4.2.29 Achieving best clinical outcomes for patients requires a change in the way services are organised:

Thrombolysis (clot-busting treatment) for stroke needs to be delivered by personnel with an appropriate level of experience and training – in settings with sophisticated diagnostic and monitoring facilities on a 24 hours a day, seven days a week immediate access basis. [The] treatment require[s] a wide range of highly skilled professionals. This means concentrating services in centres of excellence rather than spreading staff, skills and equipment over too many sites⁷.

- 4.2.30 The National Clinical Guidelines for Stroke⁸ therefore recommend that:

All patients seen within three hours of an acute neurological syndrome suspected to be a stroke should be transferred directly to a specialised hyperacute stroke unit that will assess for thrombolysis and deliver it if clinically indicated⁹.

- 4.2.31 In order to balance local access with centralisation of clinical expertise and facilities, the *National Stroke Strategy*¹⁰ (2007) recommends the provision of stroke care through formal networks, including 24/7 hyperacute stroke units.

⁵ *Mending Hearts and Brains – Clinical Case for Change: Report by Professor Roger Boyle, National Director for Heart Disease and Stroke, Department of Health (2006)*
Reducing Brain Damage: Faster Access to Better Stroke Care, National Audit Office and Department of Health (2005)

⁶ 'Time is Brain – Quantified', J.L. Saver, *Stroke* 2006;37:263-266.

⁷ *Mending Hearts and Brains, Ibid*

⁸ *National Clinical Guideline for Stroke*, Royal College of Physicians Intercollegiate Stroke Working Party (2008), which include recommendations from *Diagnosis and Management of Acute Stroke and Transient Ischaemic Attack (TIA)* from the National Institute for Health & Clinical Excellence (2008)

⁹ *National Clinical Guidelines for Stroke, Ibid*

¹⁰ *National Stroke Strategy*, Department of Health (2007)

Local Context

- 4.2.32 In response to the national strategy, NHS South East Coast pledged through *Healthier People, Excellent Care (2008)* that:

By 2010 all appropriate heart attack, stroke and major trauma patients will receive specialist care from 24/7 services meeting national guidelines... all such patients will be taken to the most appropriate specialist units under an agreement with South East Coast Ambulance trust and local hospitals commissioned by Primary Care Trusts.

- 4.2.33 The Sussex Stroke Network is hosted by NHS Hastings & Rother. In March 2009, in line with *NHS South East Coast's Operating Framework 2009/10*¹¹, its proposal¹² to centralise acute stroke care in six centres across Sussex was approved by the Sussex Commissioning Group. Under these plans, three centres (St Richard's Hospital, Princess Royal Hospital and one of the two East Sussex Hospitals Trust sites) will provide thrombolysis to their local populations in-hours, and three centres (Worthing Hospital, Royal Sussex County Hospital and the other of the East Sussex Hospitals Trust sites) will provide thrombolysis to their local populations in-hours and to a wider catchment out-of-hours.

Stroke Unit: Current Provision and Performance

- 4.2.34 The Stroke Unit at the Royal Sussex County Hospital is located on Donald Hall and Soloman Ward (23 beds, Barry Building). It faces the same challenges in maintaining patient privacy and dignity and achieving efficient organisation and effective infection management and control as other medical and elderly care wards in the building.
- 4.2.35 In spite of the inadequacies of its accommodation, the Unit performs very well. Against the clinical criteria of the National Sentinel Stroke Audit, which is prepared by the Royal College of Physicians' Clinical Effectiveness and Evaluation Unit for the Intercollegiate Stroke Working Party, the Unit scored 89 in the 2006 audit - joint 5th highest score (top 4%) in England, Wales and Northern Ireland. It scored 89 again in the 2008 audit – joint 9th highest.
- 4.2.36 In the first quarter of 2011/12 BSUH met the 80% target for Stroke patients spending over 90% of time on the unit. In 2010/11 BSUH missed this target with 75% performance against this measure.
- 4.2.37 Against the organisational criteria, the Unit scored 54 in 2006, which was below the national median of 63. However in the 2008 audit, following the introduction of in-hours thrombolysis and a service for patients with TIA (Transient Ischaemic Attack), the Unit scored 73 against a national median of 69 (upper quartile).
- 4.2.38 The Unit is ambitious to perform ever better through (i) direct patient admission rather than via the Acute Medical Unit and (ii) an increase in bed capacity. These developments will allow more patients to spend a greater proportion of their

¹¹ For PCTs in Sussex, 'an early conclusion to the strategic planning is required, together with further work on governance arrangements. Agreement of a pan-Sussex model of acute stroke care (covering 24/7 access) is required.'

¹² *Implications of Developing 24/7 Stroke Thrombolysis Across Sussex*, Sussex Stroke Network (2009)

inpatient stay on the Unit, in line with the National Clinical Guidelines¹³. This will address the principal area for development identified through the audit: the proportion of patients who spend at least 90% of their stay on the Unit.

Local Service: Imaging and Nuclear Medicine

Trust Service

4.2.39 The Trust's Imaging and Nuclear Medicine service provides a comprehensive range of diagnostic, therapeutic and interventional procedures. It supports the Trust's clinical services on its Royal Sussex County and Princess Royal Hospital campuses and also provides direct-access services for local GPs through its base at Hove Polyclinic.

4.2.40 Modalities provided include:

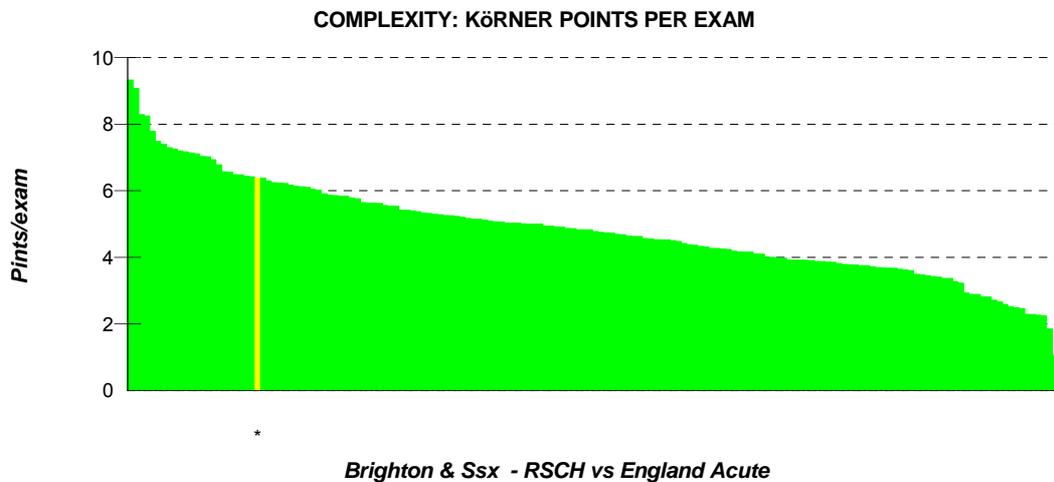
- ultrasound scanning (US), which uses sound waves to visualise soft tissues such as the internal organs, muscles and tendons;
- x-ray, which captures snapshot images of the patient's internal structures using X-ray radiation;
- fluoroscopy, which uses X-ray to obtain real-time moving images of the patient's internal structures;
- computed Tomography (CT), which uses X-rays to produce cross-sectional images through the body. CT is the decisive modality in the management of patients with major trauma. It is also a key modality in the treatment of cancer as both the 'gold standard' staging examination for many cancers and to plan radiotherapy treatment;
- magnetic Resonance Imaging (MRI), which uses an electrically-generated magnetic field to produce cross-sectional images of the body. MR is the modality of choice for imaging the Central Nervous System and therefore a critical facility for the Regional Centre for Neurosciences;
- gamma cameras, which image the gamma-rays emitted from radionuclides administered to the patient in order to demonstrate the functioning of an organ;
- positron Emission Tomography (PET-CT) and Single Photon Emission Tomography (SPET-CT), which combine functional images from nuclear medicine with cross-sectional CT images to image both structure and function;
- neuroimaging uses various imaging techniques (principally MR and CT) to image the structure and function/pharmacology of the brain for both diagnosis and intervention (e.g. angioplasty). Within the Trust, this service is located physically as part of the Regional Centre for Neurosciences and organisationally within the Imaging & Nuclear Medicine service and
- interventional Radiology uses fluoroscopic and cross-sectional imaging to guide invasive medical procedures. Some procedures require a sterile (theatre-like) environment, e.g. endovascular Aortic Repair (EVAR). Others

¹³ National Clinical Guideline for Stroke, *Ibid*

require a 'clean' environment (cf. endoscopy), for example gastrointestinal procedures such as oesophageal and rectal stenting.

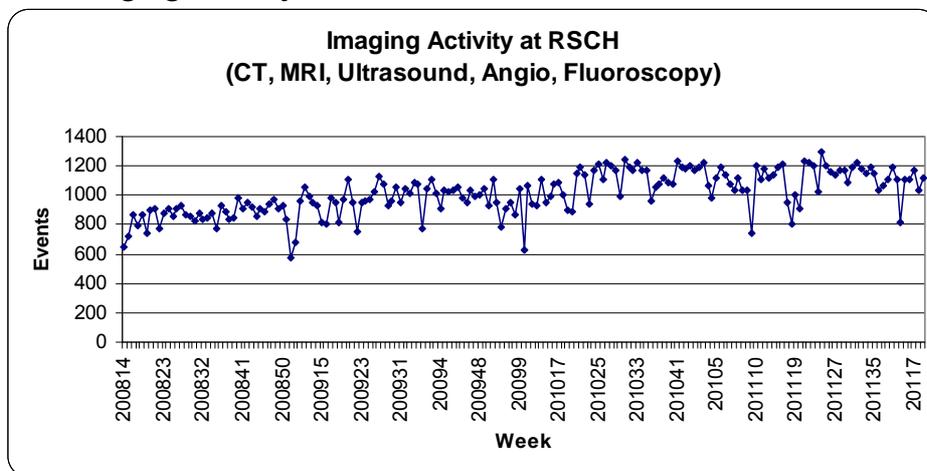
4.2.41 The service works in partnership with Brighton and Sussex Medical School and its Clinical Imaging Sciences Centre, which hosts the PET-CT. This partnership allows research, teaching and training to include the sickest patients. The complexity of examinations performed is in the upper quartile for acute hospital Trusts in England, as would be expected for a University Teaching Hospital. BSUH is represented by the yellow vertical line in the diagram below.

Figure 4.11 Complexity of Examinations



4.2.42 There has also been a steady increase in the number of examinations undertaken:

Figure 4.12 Imaging Activity



Patient Accommodation

- 4.2.43 The service is provided from three principal locations. Main Imaging is provided from the Barry Building and Nuclear Medicine from the Latilla Building, both on the Royal Sussex County Hospital campus. Neuro-imaging is provided as part of the Regional Centre for Neurosciences, currently on the Princess Royal Hospital campus. Although Imaging interventions are undertaken on an individual patient basis and are relatively quick, the service faces significant challenges in maintaining patient privacy and dignity.
- 4.2.44 The layout of the Main Imaging department is wholly inadequate:
- most departments/modalities (e.g. MR, X-ray, fluoroscopy, Interventional Radiology) are bisected by a main corridor that provides the public thoroughfare from the main entrance of the Barry Building to the lifts that service the wards above and to a side entrance used to access the eastern part of the campus. Since there is no integral toilet or shower within the fluoroscopy area, patients are required to cross the public corridor to access bathroom facilities following, for example, a barium enema procedure;
 - the design of the Barry building prevents the proper separation of patient flows within the department, for example there is no separation of inpatients and Outpatients. This means that inpatients have to wait in corridors for Imaging procedures rather than in properly screened areas that maintain their privacy and dignity. There is also no separation of Facilities Management from patient flows; the corridor that bisects Imaging is also used to transport clinical waste from the Barry Building to the external waste hold facility and
 - the age and size of the accommodation limit future expansion. The X-ray rooms are cramped and are considerably below current Health Building Notes (HBN) and Health Technical Memoranda (HTM) area. This also limits the choice of new equipment that can be installed.
- 4.2.45 The Nuclear Medicine service is currently provided from the Latilla Building, which is to the East of the Barry Building on the Royal Sussex County Hospital campus. This is also no longer fit for purpose and is programmed for demolition as part of the Stage 1 development. Specifically:
- this accommodation does not allow for the proper separation of 'hot' (radioactive) patients from patients who are waiting for examination and visitors who are accompanying them;
 - two of the gamma cameras are provided in the same room. Although a screen separates the two patients, this does not provide the appropriate level of dignity or auditory privacy. This is exacerbated because the room is considerably below current Health Building Note areas;
 - the Latilla Building is prefabricated and has no scope for improvement or expansion and
 - the licensing authority for this service has indicated that the current facilities are no longer fit for purpose. The service is danger of closure and it is only the planning for 3Ts (as an action plan for improvement) which mitigates against this serious risk.

4.2.46 The Neuro-imaging service is provided from the Hurstwood Park building on the Princess Royal Hospital campus. There is no dedicated MR scanner within the Regional Centre. Instead, the Centre has access to an independent sector MR in the main Princess Royal Hospital building. Physical access to this facility from Hurstwood Park is poor: the link corridor requires two separate lift journeys; the lifts are ageing and it is not uncommon that at least one of them is undergoing repair. In this event, an ambulance is called and the patient has to be transferred from bed to trolley and driven around the site to the main external entrance to the MR department. The same contingency arrangements are used when the CT scanner is undergoing planned or unplanned maintenance.

4.3 Regional Service: Regional Centre for Neurosciences

Current Services

4.3.1 The Regional Centre for Neurosciences provides a full adult neurosurgical and neurological service, including assessment and advice, elective and emergency admissions. The neurosurgical service includes skull base and pituitary surgery, Central Nervous System tumours and spinal surgery. The clinical neurology service provides most of its Outpatient clinics at the networked local acute hospitals but admits inpatients to the Regional Centre for assessment, treatment and review. The service has specialty interests in movement disorders, neuro-ophthalmology and stroke medicine.

4.3.2 The Regional Centre includes specialist neuro-anaesthetic, neuropathology, diagnostic and interventional neuroradiology, neuropsychology and neurophysiology services. Multidisciplinary clinics are held with endocrinology (e.g. for patients with pituitary problems), ENT (e.g. for patients with acoustic neuroma and other temporal bone lesions) and maxillofacial and plastics (through the partnership with the Queen Victoria Hospital Foundation Trust in East Grinstead).

4.3.4 The Centre does not currently provide an elective paediatric service but this may be revisited once it has transferred to the Royal Sussex County Hospital campus, in particular in light of the critical care support that could be provided by the Royal Alexandra Children's Hospital service.

Best Care, Best Place

4.3.5 The Regional Centre has been located in the Hurstwood Park building on the Princess Royal Hospital campus since 1941. At the instigation of the Lunacy Commission, the building was erected in 1938 as an acute psychiatric admissions unit to relieve overcrowding at the Sussex Asylum. It was used by the Ministry of Health during World War II as an Emergency Medical Services hospital to receive members of the armed forces, civilian air raid casualties and others. The National Hospital (Queen Square) was evacuated there in 1939 and the building has continued as a neurosciences centre since then.

4.3.6 Three independent reviews have highlighted the inadequacies of this accommodation for modern patient care. The Review of Neurosciences Services in Sussex was commissioned in 1996 by the then Sussex Health Authorities; a peer review was undertaken in 2001; and a further Review of Neurosciences Services in Sussex was undertaken in 2003 by the Kent, Surrey & Sussex

Specialist Commissioning Group. These reports drew three principal conclusions, which were encompassed in the *Best Care, Best Place* consultation of 2004. These addressed the quality of the accommodation, the need to expand and the most appropriate location

Fit for the Future (2007)

- 4.3.7 NHS Brighton & Hove and West Sussex PCTs' Fit for the Future consultation (2007) established the Royal Sussex County Hospital as the Critical Care Hospital for Sussex.

Access for Sussex Patients

- 4.3.8 In response to the *Best Care, Best Place* consultation¹⁴, the West Sussex County Council Performance & Scrutiny Committee stated that *the case for retaining a fully functioning neurosciences unit in Sussex is overwhelming and should be fully supported*.¹⁵ The Regional Centre's catchment is currently 1.4m, with proposals to expand by a further 250,000 to the North. This is consistent with the recommendation of the Society of British Neurological Surgeons that centres should serve populations of at least 1m unless equity of access would otherwise be significantly compromised¹⁶.
- 4.3.9 The Regional Centre's catchment population has outgrown its current provision of inpatient beds, theatres and other facilities. A proportion of Sussex residents therefore have to travel to London for neurosciences treatment that is being provided to others at Hurstwood Park. The Sussex PCTs' *Tertiary Services Commissioning Strategy* includes an increase in capacity so these patients can be treated locally.
- 4.3.10 In common with other neurosurgical services, the Regional Centre is struggling to meet the national 18 week standard. Although it has done so in some periods, the lack of inpatient and theatre capacity means that it is unable to achieve this standard consistently. This is exacerbated by the limitation of having only two neurosurgical theatres, so it is not possible to separate elective from non-elective activity as has been achieved successfully in all other specialities. This results in a relatively high rate of theatre cancellations.
- 4.3.11 In this context, the Centre is unable currently to accept all patients with major head injuries from its catchment area in line with the National Institute for Health & Clinical Excellence guidance that transfer to a Neurosciences Centre *'would benefit all patients with serious head injuries (GCS ≤ 8), irrespective of the need for neurosurgery'*.¹⁷

Modern Patient Accommodation

- 4.3.12 Over 70 years after it was erected, this accommodation is no longer fit for purpose. It is cramped, poorly designed for modern healthcare and unable to provide an

¹⁴ *Best Care, Best Place*, Mid Sussex Primary Care Trust and Brighton & Sussex University Hospitals Trust (2004)

¹⁵ 'Provision of Neuroscience Services, Hurstwood Park, Haywards Heath – Position Statement', Performance & Scrutiny Committee, West Sussex County Council (January 2005)

¹⁶ *Safe Neurosurgery 2000*, Society of British Neurological Surgeons (1999)

¹⁷ *Head Injury: Triage, Assessment, Investigation and Early Management of Head Injury in Infants, Children and Adults*, National Institute for Health & Clinical Excellence (2007)

appropriate level of patient privacy and dignity. Maintaining standards of infection control and cleanliness also present considerable daily challenges.

Transfer to Royal Sussex County Hospital

- 4.3.13 The independent reviews recommended that the Regional Centre be transferred to the Royal Sussex County Hospital campus both to co-locate it with other tertiary services, such as the Sussex Cancer Centre, and also as the most effective means to anchor the service in Sussex. Having considered the option of rebuilding the Regional Centre in its current location¹⁸, this was the basis of the *Best Care, Best Place* consultation.
- 4.3.14 The relationship with the Sussex Cancer Centre is particularly important. This means that the Sussex Cancer Network hosts four neuroscience Multidisciplinary Teams (MDTs):
- neuroscience and spinal cord combined MDT;
 - pituitary cancers MDT;
 - skull based cancers MDT and
 - network Brain MDT.
- 4.3.15 Co-locating the Regional Centre with the Sussex Cancer Centre on the Royal Sussex County Hospital campus will ensure that these MDTs are coordinated, have the appropriate core membership and that patients receive integrated care from a single site.
- 4.3.16 The *Best Care, Best Place* consultation also centralised emergency surgery on the Royal Sussex County Hospital campus. Neuroscience is a critical service for major trauma and severe injury, as set out in the NCEPOD standards and Healthcare for London criteria for Major Trauma Centres. The service's contribution to the care of these patients is currently limited because of its location on the Trust's designated elective campus. The case for the transfer to Brighton is therefore further strengthened by the designation of the Royal Sussex County Hospital as the Critical Care Hospital and Major Trauma Centre under the *Fit for the Future* consultation (2007) and through NHS South East Coast's *Healthier People, Excellent Care* (2008) respectively.

4.4 Regional Service: Sussex Cancer Centre

Introduction

- 4.4.1 This Outline Business Case updates the Sussex Cancer Centre 2004 Strategic Outline Case. It has three elements: (i) radiotherapy (Linear Accelerators), (ii) chemotherapy (Day Unit), and (iii) haemato-oncology (inpatients).

Sussex Cancer Network

¹⁸ The Joint Health Overview & Scrutiny Committee established in 2005 by Brighton & Hove City Council, West Sussex County Council and East Sussex County Council to review the *Best Care, Best Place* proposals was 'satisfied that the draft business case adequately considered the option of re-providing neurosciences services on the Princess Royal Hospital site.'

4.4.2 The Sussex Cancer Network (SCN) was established in 1996. It is one of 30 Cancer Networks in England and one of three managed Cancer Networks within the NHS South East Coast area. It covers the provision of cancer services from Rye to Worthing and Brighton to East Grinstead. It is based around the radiotherapy catchment population of the Sussex Cancer Centre (currently just over 1m people). The SCN's Executive Board includes the Chief Executives of all the consistent statutory organisations, including PCTs and acute Trusts.

4.4.3 The aims of the SCN are to:

- reduce people's risk of developing cancer and help them to stay healthy;
- support the development of services for the early diagnosis of cancer and
- ensure that all patients receive treatment and care that is of a uniformly high standard.

Figure 4.13 Sussex Cancer Network PCT Coverage



4.4.4 Within the network's boundaries there are three acute Trusts providing hospital cancer services:

- Brighton and Sussex University Hospitals Trust, which provides radiotherapy, chemotherapy and inpatient and outpatient cancer services;
- East Sussex Healthcare Trust (Eastbourne District General Hospital, Conquest Hospital) and
- the Worthing Hospital catchment of the Western Sussex Hospitals Trust (the catchment of St Richard's Hospital in Chichester is currently served by Central South Coast Cancer Network).

4.4.5 The surrounding Local Health Community includes four PCTs:

- NHS Brighton & Hove;
- NHS East Sussex Downs & Weald;
- NHS Hastings & Rother and
- NHS West Sussex.

These are now clustered into a single PCT for Sussex (NHS Sussex).

Sussex Cancer Centre

4.4.6 The Royal Sussex County Hospital is the hub of the Sussex Cancer Network. The principal role of the Sussex Cancer Centre is the provision of radiotherapy and complex chemotherapy to patients across the network area:-

- radiation therapy (or radiotherapy) is the medical use of ionising radiation to control malignant cells - this is delivered through a Linear Accelerator (Linac) and
- chemotherapy is the use of antineoplastic drugs or a combination of these drugs into a cytotoxic standardised treatment regime.

4.4.7 Within the Trust, the Cancer Strategy Board, which is constituted as a subcommittee of the Trust Board, has oversight of the performance and development of the Trust's cancer services, including ensuring that they achieve the relevant national and local targets.

Radiotherapy

National Context

4.4.8 Considerable progress has been made since the 2000 *NHS Cancer Plan*¹⁹ highlighted the challenges faced by the NHS in providing cancer treatment and in particular access to radiotherapy:

There are widespread geographical inequalities in the quality and type of treatment patients receive, because of shortages of specialist staff, fragmentation of care, inadequate access to surgical facilities, a postcode lottery on prescribing and insufficient radiotherapy facilities.

4.4.9 However there are widespread geographical inequalities in the quality and type of treatment patients receive, because of shortages of specialist staff, fragmentation of care, inadequate access to surgical facilities, a postcode lottery on prescribing and insufficient radiotherapy facilities.

4.4.10 The national *Cancer Reform Strategy*²⁰ (2007) extended the waiting time targets to further groups of patients, including the 31 day standard (from diagnosis/decision to treat to first treatment) from January 2011 onwards. The strategy noted that '*the largest impact of this change will be in radiotherapy delivery, where increased capacity will particularly be needed...*'

4.4.11 The Trust is currently meeting these standards, partly by making use of other organisations and by extended use of current old equipment but recognises that its ability to continue to meet these targets will be made more difficult by a recognised increasing unmet need.

4.4.12 The Sussex Cancer Network has confirmed its understanding that the January 2011 national *Strategy for Cancer* does not change any assumptions in terms of specialist services: implementation of Improving Outcomes Guidance on rarer cancers, eg. brain and CNS, still stand, and cancer waiting time standards remain unchanged.

¹⁹ *The NHS Cancer Plan: a Plan for Investment, a Plan for Reform*, Department of Health (2000)

²⁰ *Cancer Reform Strategy*, Department of Health (2007)

- 4.4.13 The Network notes that if anything, the 2011 Strategy places even greater emphasis on radiotherapy services, including the need for greater equality of access. The plans to develop linked radiotherapy units in East and West Sussex are aligned with this ambition.

Network Planning

- 4.4.14 Planning radiotherapy capacity to ensure that the patient access standard continues to be met is complex. Factors include population growth, changes in morbidity, likely future changes in treatment regimes, improvements in the efficacy of radiotherapy services (as set out in the National Radiotherapy Advisory Group's 2007 report²¹) and equality of access²².
- 4.4.15 Locally, planning for radiotherapy capacity has been undertaken by the Sussex Cancer Network. This concluded that:

*Implementation of the recommendations of the NRAG report within the SCN and repatriation of Hastings & Rother patients from Kent will require access to another 6-7 Linacs, making a total of 10-11 in the Network over the next 10 years, including a service efficiency machine. The NRAG report also recommends that the maximum size of a radiotherapy department is 8 Linacs and the minimum 2 Linacs. Placing 2 Linacs in a linked site would satisfy this requirement.*²³

- 4.4.17 This plan was agreed by the Sussex Cancer Network's Executive Board in July 2008. It was updated in light of guidance²⁴ issued by the National Cancer Action Team in 2008 and has been incorporated in the Network's most recent Service Delivery Plan²⁵ (2009/10 to 2011/12). The Sussex-wide *Tertiary Services Commissioning Strategy* (2008) assessed that for Sussex as a whole as many as 13-14 Linacs may be needed by 2016 to accommodate coastal West Sussex and the Northern part of Sussex. Additional clarification concerning the configuration of linac accelerators across the region and calculations about the additional capacity therein is contained in appendix 4A.

Haematology-Oncology

Current Provision

- 4.4.18 With the Trust, patients with cancer receive their inpatient treatment in a number of wards:
- Howard 1 (9 beds, Jubilee building) is the dedicated oncology ward;

²¹ *Radiotherapy: Developing a World Class Service for England*, Report to Ministers from the National Radiotherapy Advisory Group (2007)

²² 'Participants at a patient workshop about choice indicated that up to 45 minutes travelling time was acceptable (although less would be preferable). No more than 45 minutes should therefore be seen as good practice although it is recognised that this is not achievable in all areas. A drive time analysis for radiotherapy has shown that 87% of the population already live within 45 minutes of a radiotherapy centre.' - *Radiotherapy: Developing a World Class Service*, *Ibid*

²³ *National Radiotherapy Advisory Group Report – Action Plan*, Dr Linda Garvican, Public Health Director, Sussex Cancer Network (2008)

²⁴ *Cancer Commissioning Guidance*, National Cancer Action Team, Department of Health (2008)

²⁵ *Service Delivery Plan 2009/10 – 2011/12*, Sussex Cancer Network (March 2009)

- patients with haematology-related cancer are treated on the haematology ward (10 beds, Millennium Building) and
- because of insufficient beds on Howard 1, other patients with cancer are treated principally on general medical and elderly care wards (Barry Building/ Jubilee Building).

4.4.19 As described above, the Jubilee and Barry buildings are no longer fit for clinical purpose. The inpatient accommodation within the Renal Unit is more adequate but provision of care is fragmented across the campus. This was confirmed in the January 2007 Peer Review of haematology and chemotherapy provision within the Sussex Cancer Network, undertaken as part of the National Cancer Peer Review Programme. The review congratulated the Network *on the progress that has been made in implementing their Improving Outcomes Guidance Haematology Action Plan* however it noted that:

*Facilities for patients being treated with Haemato-Oncological conditions in Sussex remain a concern... services at Worthing Hospital require improvement and Brighton is fragmented across the site... The joint MDTs are progressing satisfactorily, though there is a need for the Network Management Team to ensure that adequate development takes place at BSUH to support any transfer of patients from Worthing.*²⁶

Chemotherapy

National Position

4.4.20 The National Chemotherapy Advisory Group's draft report²⁷ (2008) states that:

The use of systemic anticancer therapy (this includes chemotherapy, monoclonal antibodies, small molecule targeted agents but is referred to for simplicity as 'chemotherapy'...) has increased markedly over the past decade. This has led to undoubted benefits for very many patients with improved cure or long term remission rates for some and prolongation of life and/or improvements in quality of life for others.

An audit undertaken across four cancer centres serving a combined population of around 3 million has shown that the total number of programmes of chemotherapy (a planned period of repeated cycles of treatment) increased by around 60% over a four year period (2002/3 to 2006/7)... This level of increase is commensurate with the overall increase in expenditure on systemic therapies for cancer (approximately 60%) between 2002 and 2006 reported in the Cancer Reform Strategy (2007).

4.4.21 This report reinforced the statement from the Joint Collegiate Council for Oncology²⁸ the previous year that:

The demand for cancer services continues to increase year by year and services are under extreme pressure. Waiting lists are commonplace in

²⁶ Cancer Peer Review Report, South Zone Peer Review Team/Sussex Cancer Network (June 2007)

²⁷ Chemotherapy Services in England: Ensuring Quality & Safety, National Chemotherapy Advisory Group / National Cancer Action Team (draft, November 2008)

²⁸ Principles to Underpin the Delivery of Radiotherapy and Chemotherapy Services to NHS Cancer Patients, Joint Collegiate Council for Oncology (Royal College of Physicians, Royal College of Radiologists) 2007

radiotherapy and are currently appearing for chemotherapy and for other systemic therapy. Increased capacity will be required to deal with these recurrent deficiencies and to meet increasing demand over the next decade.

Local Provision

- 4.4.22 On the Royal Sussex County Hospital campus, chemotherapy is provided from the Sussex Cancer Centre and from the haematology day case unit (Renal Unit, Millennium Building). The January 2007 Cancer Peer Review report²⁹ identified specific problems with the Haematology Day Unit which it considered to be small and isolated.

Acute Oncology

- 4.4.23 The 2008 NCEPOD report³⁰ into the care given to patients who died within 30 days of receiving systemic anticancer therapy identified a number of concerns, including inadequate care for patients readmitted with complications following chemotherapy especially for neutropenic sepsis. This is contrary to the NICE³¹ and COIN³² guidelines.
- 4.4.24 The National Chemotherapy Advisory Group defines acute oncology as encompassing *both the management of patients who develop severe complications following chemotherapy or as a consequence of their previously diagnosed cancer and the management of patients who present as emergencies with previously undiagnosed cancer*. It recommends that:

Acute oncology services should have clear and readily accessible policies for managing complications including neutropenic sepsis. These should be agreed across a network. At a minimum there should be 24 hour access to telephone advice from an oncologist. Treat and transfer arrangements should be in place at hospitals which do not have appropriate expertise for inpatient management... Whenever a patient receiving chemotherapy presents to A&E or is admitted to hospital the acute oncology team should be informed within 24 hours.

Cancer Research

- 4.4.25 Cancer research is a core element of the Trust and schools research strategy. The Trust has hosted the Sussex Cancer Research Network for the past 9 years. Significant investment has been made in developing the academic platform to support experimental medicine in this area. In 2011 the Trust and BSMS formed a strategic alliance with Bart's and the London NHS Trust and were selected as one of 10 Experimental Cancer Medicine Centres by the National Institute for Health research and Cancer Research UK. This will place us at the forefront of experimental and translational cancer research in the world adding to the already enviable reputation of BSMS' Psychosocial Oncology Group and the Universities Genome and Damage Stability Centre.

4.5 Major Trauma

²⁹ *Cancer Peer Review Report, Ibid*

³⁰ *For better, for worse? A review of the Care of Patients who Died within 30 Days of Receiving Systemic Anti-Cancer Therapy*, National Confidential Enquiry into Patient Outcome and Death (2008)

³¹ *Improving Outcomes in Haematological Cancers, Ibid*

³² *Chemotherapy Guidelines*, Clinical Oncology Information Network (COIN) / Royal College of Radiologists (2001)

Introduction and Summary

- 4.5.1 A number of high-profile reports published in the United Kingdom in recent years have highlighted major deficiencies in the provision of major trauma care in this country. It is estimated that there are 5,400 deaths annually and many other trauma cases resulting in permanent disabilities requiring long-term care. Major trauma costs the NHS £0.4 billion a year excluding rehabilitation and home care costs and the significant lost economic output (estimated at up to £3.7 billion a year).
- 4.5.2 Locally, NHS South East Coast confirmed through *Healthier People, Excellent Care* (2008) that the Royal Sussex County Hospital will become the Major Trauma Centre for Sussex and the wider Region.
- 4.5.3 The NCEPOD report *Trauma: Who Cares?* (November, 2007) concluded that over half the patients in its study received sub optimal care, with 2/3rds of major trauma patients taken to a local hospital subsequently being transferred to a larger hospital adding a minimum of 6 hours delay. Current death rates are 40% higher in the UK than in parts of the US, Canada and Europe where there are effective trauma systems. The exception is the Royal London Hospital, which has 28% fewer deaths from major trauma compared with national average.
- 4.5.4 The National Audit Office (NAO) report published in February 2010 found that the current absence of systems and standards in trauma care lead to poorer patients outcomes and, in some instances, death. The report set out the need to improve the planning and design of major trauma networks. The *Operating Framework for the NHS in England 2011/12* includes the establishment of regional networks for major trauma during 2011/12, including the requirement on all hospitals receiving major trauma patients to submit TARN (Trauma Audit and Research Network) returns as part of the system of national audit.
- 4.5.5 NHS South East Coast had already committed to the establishment of trauma networks through *Healthier People, Excellent Care*:
- ...by 2010, all appropriate... major trauma patients will receive specialist care from 24/7 services meeting national guidelines... all such patients will be taken to the most appropriate specialist units under agreement with South East Coast Ambulance Service and local hospitals commissioned by PCTs.³³*
- 4.5.6 In order to comply with the requirements of the *Operating Framework 2011/12*, the Trust has started the phased introduction of major trauma, neurosurgery and emergency spinal surgery on the Royal Sussex County Hospital (RSCH) site. This is due to be completed by April 2012, when all trauma systems in England are expected to go live.

Incidence of Major Trauma

- 4.5.7 Severe injury remains a common cause of death and permanent disability across all ages in the United Kingdom and implies substantial costs to society in medical

³³ Supplement to NHS South East Coast Operating Framework (2010/11), NHS South East Coast (July 2010)

care, premature death, disability and use of social services^{34,35}. Injuries are a major cause of morbidity and mortality in young people, representing the leading cause of death in those aged younger than 35 years and causing approximately 3,500 deaths annually in England and Wales³⁶. The number of serious injuries implies approximately 640,000 hospital admissions each year and more than 6 million attendances to accident and emergency (A&E) departments.^{37,38}

- 4.5.7 The incidence of major trauma (defined as a new injury severity score (NISS) \geq 16) is currently 10,500 per year, equivalent to one patient per 1,000 presenting in A&E departments³⁹. While the number of people killed or severely injured in a road traffic collision (RTC) has declined significantly over the past four decades, the numbers are still substantial: in 2005 there were 2,913 fatal road accidents, 25,029 serious road accidents and 170,793 minor road accidents in the United Kingdom⁴⁰. The value to society of preventing these accidents was estimated at £12,807 million, or £64,440 per accident.⁴¹ The annual cost to the NHS of treating trauma injuries is currently estimated at £1.6 billion; about 7% of the total annual NHS budget⁴².

National and Regional Policy Context

- 4.5.8 In 1961 the Osmond-Clark report⁴³ recommended a tripartite scheme of peripheral casualty units, DGH accident centres and regional major injury units. In 1988 the Royal College of Surgeons reported '*significant deficiencies in the management of seriously injured patients*⁴⁴. Its retrospective study of 1,000 trauma deaths concluded that '*one third of all deaths occurring after major injury were preventable in the large DGHs.*'
- 4.5.9 Subsequent reports, including *Better Care for the Severely Injured*⁴⁵ (2000) and *Trauma: Who Cares?*⁴⁶ (2007), drew similar conclusions. These included recommending that:

there should be a National Trauma Service based on geographical trauma systems for England, Wales and Northern Ireland' in which,

³⁴ *Better Care for the Severely Injured: A Joint Report from the Royal College of Surgeons of England and the British Orthopaedic Society*, The Royal College of Surgeons of England (2000)

³⁵ *Saving Lives: Our Healthier Nation*, Department of Health (1999)

³⁶ *Mortality Statistics by Cause, Sex and Age; England and Wales 2005*, Office for National Statistics (2006)

³⁷ *Hospital Episode Statistics*, Department of Health (2006)

³⁸ *Strategic Review of Research Priorities for Accidental Injury*, Ward H, Christie N, Department of Health (2000)

³⁹ 'Improvement in trauma survival in Leeds', Burdett-Smith P, Airey GM, Franks AJ. *Injury*. 1995;26:455–458.

⁴⁰ *Road casualties Great Britain 2005*, Department for Transport, Scottish Executive, National Assembly for Wales (2006)

⁴¹ *Valuation of Road Accidents*. Highway Economics Note No. 1, Department of Transport (2005)

⁴² *Saving Lives: Our Healthier Nation*, *ibid*

⁴³ Osmond-Clark H. *Accident Services Review Committee of Great Britain and Ireland*, BMA (1961)

⁴⁴ *Commission on the Provision of Surgical Services: The Management of Patients with Major Injuries*, The Royal College of Surgeons of England (1988)

⁴⁵ *Better Care for the Severely Injured: A Joint Report from the Royal College of Surgeons of England and the British Orthopaedic Society*, The Royal College of Surgeons of England (2000)

⁴⁶ *Trauma: Who Cares?*, National Confidential Enquiry into Patient Outcomes and Death (NCEPOD) (2007)

'the achievement of audited standards of trauma care with satisfactory outcomes should determine a hospital's future reception of severe injuries rather than its size or apparent catchment population' and that

*'improved care for the severely injured will create an opportunity for reducing the cost of avoidable death and unnecessary morbidity'*⁴⁷

- 4.5.10 In its 2007 consultation on the establishment of a network of Major Trauma Centres for London, Healthcare for London argues that:

A trauma system... should have big benefits for patients – the establishment of a trauma system in Quebec resulted in mortality dropping from 52% to 19% due to treatment in specialist centres and direct transport from the scene to these centres.

*The need for change has been evident for some time...but this has never been put into practice... At the heart of this system would be the trauma centres. There is an existing multi-speciality trauma service at the Royal London Hospital that currently manages over 950 trauma patients per year... Outcomes are impressive – in 2006 they had a 28% reduction in mortality in the most severely-injured patients when compared with the national average...*⁴⁸

- 4.5.11 Locally, the *Fit for the Future* consultation (2007) undertaken by NHS Brighton & Hove and West Sussex PCT confirmed the Royal Sussex County Hospital as the Critical Care Centre for Sussex. NHS South East Coast's *Healthier People, Excellent Care* (2008) then confirmed the establishment of the Royal Sussex County Hospital as the Major Trauma Centre to support a Trauma Network across Sussex and the wider Region.

Patient Numbers

- 4.5.12 The catchment area for the Sussex Trauma Network has been established in partnership with the South East Coast Ambulance Service (SECamb) and in discussion with Healthcare for London. This used SECamb's road ambulance travel times model to identify isochrones (equidistance by travel time) between the Royal Sussex County Hospital and the next nearest Major Trauma Centres: the Royal London Hospital, St George's Hospital, King's College Hospital and Southampton University Hospital⁴⁹. The air ambulance catchment has been established using the same principle but with straight line equidistance.

⁴⁷ *Better Care for the Severely Injured, Ibid*

⁴⁸ Healthcare for London: a Framework for Action, NHS London (July 2007)

⁴⁹ NHS South Central's *Our NHS, Our Future* document, *Towards a Healthier Future* (2008), does not make an explicit commitment to the establishment of Southampton University Hospitals Trust as a Major Trauma Centre.

Figure 4.15 Trauma Catchment



4.5.13 The catchment population was established by mapping the catchment area against SECamb's population data at individual ward level. This has identified a catchment of 1.45m currently, rising to 1.49m in 2014 based on population projections. Although this is below the 3-4m referred to in the Royal College of Surgeons' Policy Briefing, it is important to note the College's caveat that catchment populations will vary by location and that the key factor is the number of seriously injured patients received.

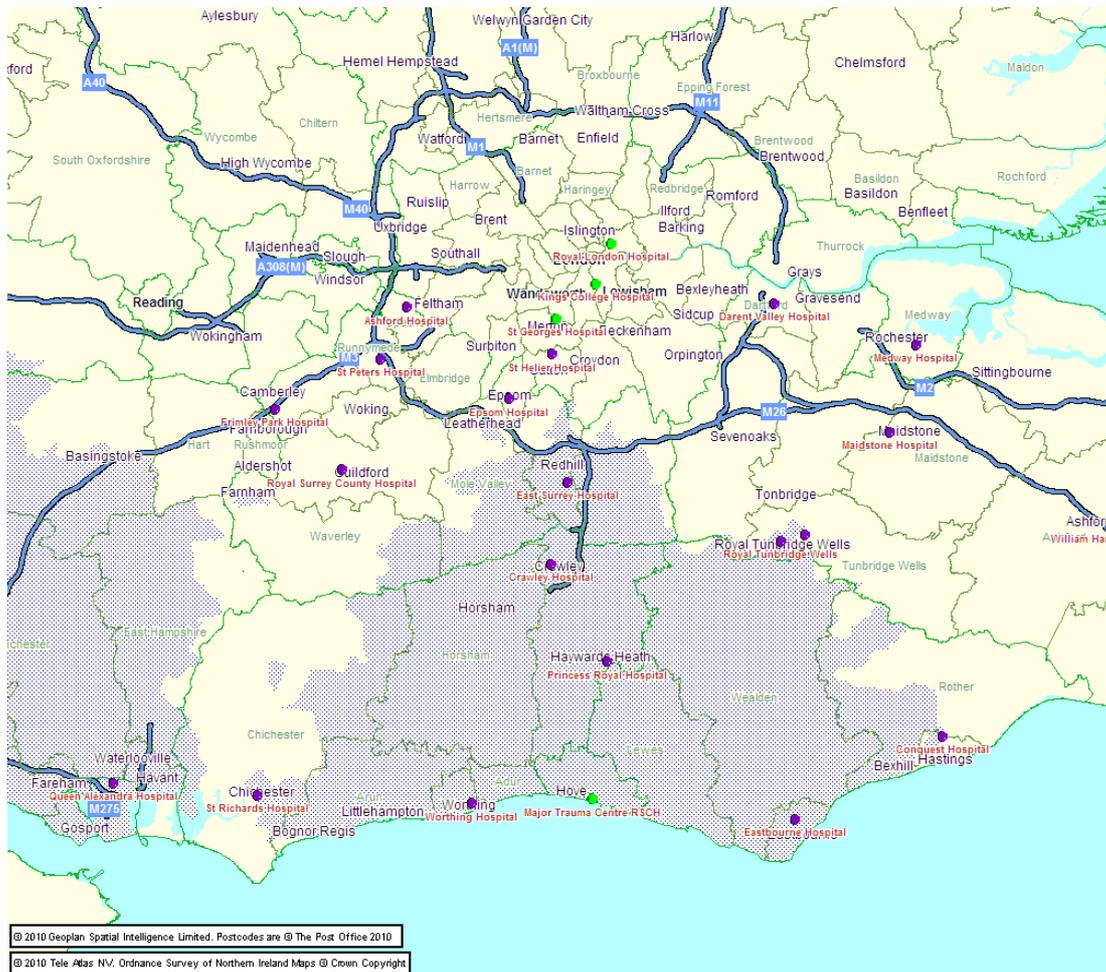
Major Trauma Cases

4.5.14 The recent national CAG report states that patients should be able to reach a Major Trauma Centre or Trauma Unit within 45 minutes travel time (under emergency conditions). As the Major Trauma Centre, RSCH will receive additional trauma cases through two routes:

Bypass

4.5.15 CAG report recommends that suspected major trauma patients who are within 45 minutes travel time of a Major Trauma Centre should normally be taken there directly, bypassing other hospitals. The map below outlines (in grey this boundary for both RSCH and to the left illustrates the same for Southampton).

Figure 4.14 45 Minute Isochrone from RSCH



- 4.5.16 The resident population within the boundary of 45 minutes drive time under emergency conditions from RSCH is 1.7m. RSCH will therefore receive a number of patients who fall into the classification of ‘over-triage’, i.e. those patients who have been assessed as potentially needing the services of the Major Trauma Centre but after assessment are found to have a spectrum of injuries that are classified as ISS<16.
- 4.5.17 The South East Coast Trauma System Board has defined the standards (notably the medical infrastructure) that Trauma Units will need to meet to be designated to receive major trauma cases, however the Sussex Trauma Network has not yet concluded the process of designating Trauma Units. The proportion of over-triage cases that RSCH will receive is therefore an estimate.

Secondary Transfer

- 4.5.18 The CAG report defines a Trauma Network as a Major Trauma Centre supporting a number of ‘feeder’ Trauma Units. When a Trauma Unit identifies that a patient’s needs exceed its capability, the patient will be rapidly transferred to the Major Trauma Centre. The additional cases that RSCH will receive will therefore depend on the number of linked Trauma Units.

- 4.5.19 The Sussex Trauma Network is in the process of confirming with PCT commissioners and acute trusts which hospitals will link with RSCH as their Major Trauma Centre. Based on discussions to date this business case assumes that:
- St Richard's, Worthing, Eastbourne and Conquest will refer all their secondary transfers to RSCH
 - East Surrey may in time refer a proportion of its secondary transfers to RSCH (i.e. patients living near the Surrey/Sussex border), subject to further discussions with commissioners, although it is formally linked with the SW London & Surrey Trauma Network
 - the prospective Kent Trauma Units (Maidstone & Tunbridge Wells, William Harvey Hospital, Medway Maritime Hospital) are most likely to link with King's at their Major Trauma Centre. However a proportion of the Kent population may be taken to a Trauma Unit at the Conquest Hospital or directly to the Major Trauma Centre at RSCH where this is clinically and operationally appropriate at the time.
- 4.5.20 There are two challenges in assessing the additional major trauma activity that RSCH will receive:
- assessing the incidence of major trauma across the network, given that not all Trusts are yet submitting data to the Trauma Audit & Research Network (TARN) database; and
 - assessing the number of cases that will bypass or have secondary transfer to RSCH, as described above.
- 4.5.21 In support of planning by emerging trauma networks, the TARN has developed a methodology to estimate major trauma incidence using national data and relating it to A&E attendances at each hospital. Hospitals are profiled based on services, including neuroscience units and spinal surgery services. A report has been produced for hospitals in the South East which contains estimates of the number of major trauma cases this methodology predicts for each hospital.
- 4.5.22 Using TARN estimates for each hospital the following activity is included:
- 45 Minute Boundary Catchment
 - All major trauma patients estimated by TARN for Eastbourne, Conquest, St Richard's and Worthing hospitals and a proportion of those estimated for Maidstone & Tunbridge Wells Hospitals Trust (given that Tunbridge Wells, and in future Pembury Hospital, lie within the 45 minute boundary)
 - A small proportion of over-triage for these hospitals
 - A small number of secondary transfers from East Surrey,

- A small number of secondary transfers from Kent hospitals in recognition that some of their residents will be taken to the Conquest as their TU so will have secondary transfer to RSCH.

Figure 4.15 TARN Estimates

Category	RSCH	East Sussex Hospitals	West Sussex Hospitals	East Kent Hospitals	Maidstone & Tunbridge Wells	Dartford Hospital	Medway Hospital	All
ISS>16	270	39	38	76	39	37	50	549
ISS 9-15	174	131	160	209	131	74	113	992
ISS 1-8	57	60	57	95	60	33	50	412
All	501	230	255	380	230	144	213	1953

- 4.5.23 TARN estimates that the number of cases received at RSCH is higher than expected relative to population size due to the specialist regional head injury service at Hurstwood Park Neurosciences Centre. However because Hurstwood Park Neurosciences Centre is located on the PRH campus patients with both head and other severe injuries are transferred directly to other MTCs. When RSCH goes live as the Major Trauma Centre with an on-site emergency head injury service patients will no longer be transferred..
- 4.5.24 The table below includes an estimate for RSCH and only new cases are included in the financial modelling.

Figure 4.16 Prediction for New Major Trauma Cases and Over-triage

	BSUH	East Sussex Hospitals	Western Sussex Hospitals	East Kent Hospitals	Maidstone & Tunbridge Wells	East Surrey	All
1) Patients within 45 minute boundary (proportion of TARN estimates)							
ISS=>16	100%	100%	100%	0%	25%		
ISS 9-15 (Over-triage)		50%	50%	0%	0%		
Prediction for Patient Numbers							
ISS=>16	270	39	38	0	10		357
Current	100						100
New	170						257
ISS 9-15 (Over-triage)		66	80	0	0		146
2) Prediction for numbers of additional Secondary Transfer							
ISS=>16				10%		(Estimate)	
ISS=>16				8		10	18
Total New Cases Predicted							
ISS=>16		274					
ISS 9-15 (Over-triage)		146					
Total		420					

4.5.25 It should be noted that 357 major trauma cases per annum exceeds the Royal College of Surgeons' "critical mass" recommendation of at least 250 cases per annum, as set out in its *Provision of Trauma Care: Policy Briefing* (2007).

Clinical Repertoire – Integrated Patient Care

4.5.26 Two clinical services are of particular note:

- in 2008 the Trust and the Queen Victoria Foundation Hospital Trust in East Grinstead signed a memorandum of understanding to work in partnership to complement each other's areas of clinical expertise. The Queen Victoria Trust enjoys an international reputation in the care of patients with burns and in plastic and reconstructive surgery. Rather than seek to duplicate this provision as part of the Major Trauma Centre development, shared clinical pathways are being agreed. This will mean that patients with major trauma requiring plastic and reconstructive surgery or burns care will either be treated at the Royal Sussex County Hospital by clinicians from the Queen Victoria Hospital or will be stabilised at the Royal Sussex County Hospital and transferred to the Queen Victoria Hospital, as clinically appropriate

- the move of the Regional Centre for Neurosciences from the Princess Royal Hospital to the Royal Sussex County Hospital, which was agreed through the *Best Care, Best Place* consultation (2004), is discussed in detail above. This move is integral to the establishment of the Royal Sussex County Hospital as a Major Trauma Centre and also serves to anchor the Regional Centre within Sussex.

Clinical Governance

- 4.5.27 The Trust Trauma Steering Committee, which is chaired by the Chief of Trauma, has been established to oversee the clinical planning for the Major Trauma Centre. A bi-monthly Trauma Audit and Review is chaired by the Chief of Trauma and ensures a robust process for continuous improvement in the care of patients who have had traumatic injuries. In addition a multi-disciplinary group meets weekly to review every case that has generated a trauma call.
- 4.5.28 The development of the Major Trauma Centre is led by the Trust's Chief of Trauma, who is responsible for the planning, organisation, supervision and systematic delivery of care to patients with severe injury and trauma and for ensuring continuous evaluation of and improvement in practice.
- 4.5.29 The Sussex Trauma Network has established three workstreams:-
- Pre-Hospital Care. This focuses on the development and implementation of the pre hospital pathway and major trauma triage tree and protocols for bypass versus secondary transfer to the Major Trauma Centre;
- Emergency Department. This is focusing on the Emergency Department's response to trauma arrivals, including resuscitation, identification of injuries, documentation and clinical protocols and the decision to undertake secondary transfer
- Acute and on-going care. This addresses the remainder of the patient pathway from the point of leaving the Emergency Department to discharge from the hospital (or transfer back to referring hospital or another facility). It includes the clinical and non-clinical support services that are available within the major trauma centre and within the Sussex Trauma Network including rehabilitation.
 - It will be informed by existing standards, including the NCAG Clinical Advisory Groups Report on Regional Network for Major Trauma, Healthcare for London designation criteria and *Trauma: Who Cares?* report, as well as the work emerging from the intercollegiate committee of the Royal College of Surgeons, Royal College of Anaesthetists, Royal College of Paediatrics & Child Health and College of Emergency Medicine.

Interim Planning

- 4.5.30 Detailed specialty-level planning is being undertaken by the Trust's Trauma Committee to increase incrementally the Royal Sussex County Hospital's major trauma capability in preparation for and in the lead-up to the expected full establishment of the service by April 2012

Paediatric Trauma

- 4.5.31 The Trust does not currently provide a Paediatric Intensive Care Unit (PICU), although it has a facility and protocol in place to stabilise and ventilate paediatric patients prior to transfer to a PICU. The plans and activity modelling set out above therefore assume that the Major Trauma Centre will be for adults; paediatric patients arriving with adults (for example following a Road Traffic Accident) will be managed in line with the existing protocol either for treatment within the paediatric or Neurosciences services in the case of immediately life-threatening injuries or for stabilisation and transfer to a PICU elsewhere.

Teaching, Training and Research

- 4.5.32 Brighton & Sussex University Hospitals Trust (BSUH) and Brighton & Sussex Medical School embrace both basic and applied aspects of clinical science. They aim to develop those areas of biomedical and clinical research which were already strong within the local health economy and Universities of Brighton and Sussex (for example HIV, Oncology, Behavioural Medicine and Neuroscience).
- 4.5.33 In parallel they have developed new areas of research endeavour in line with the new BSMS clinical academic appointments at Professorial and Senior Lecturer level, focused on the expertise and interests of those individuals (e.g. Infection and Inflammation, Elderly Care, Stroke Medicine, Vascular Biology, Neurosciences and Imaging). They have set out to embrace the opportunities offered in *Government's Strategy for Research in the NHS*. By identifying a limited number of themes where the combined expertise of the medical school, the two universities and the Trust can create a critical mass they aim to make a significant contribution to the health care agenda in the South East of England and UK. The BSUH Research Strategy Vision is attached in appendix 4B.

Estate Issues

- 4.5.34 Some services are provided from buildings up to 180 years old (Barry, Jubilee and Latilla buildings) or from buildings that are designed to have only a short life (Nuclear Medicine, Estates workshops, Trust Headquarters) and are no longer fit for purpose. These shortcomings have a significant impact on patients and visitors:-
- some inpatients have to be taken outside to move between clinical facilities;
 - there is very limited car parking on the RSCH campus;
 - there are multiple entrances to the RSCH campus: way-finding is complex and confusing to patients, visitors and staff;
 - the Trust is unable to meet carbon footprint targets due to old and energy inefficient building stock;
 - bed spacing in older wards does not meet optimal standards and
 - the maintenance and cleaning of old building stock requires disproportionate investment.

Figure 4.17 ENT Building



- 4.5.35 In general the condition of the Estate meets statutory requirements: the medical gas safety is good, the Legionella requirements are being met and are good, the fire safety is robust and the maintenance of the general estate meets statutory and, health and safety requirements. The Trust has also undertaken surveys with regards to Disability Discrimination Act and sustainability, and has identified the areas that need to be improved.
- 4.5.36 A six facet survey of the Trust's estate has been carried out as part of the process to develop an Estate Strategy. The outcomes for functional suitability, utilisation and quality are set out on the pie charts below:

Figure 4.18 Six Facet Survey Outcome: Functional Suitability

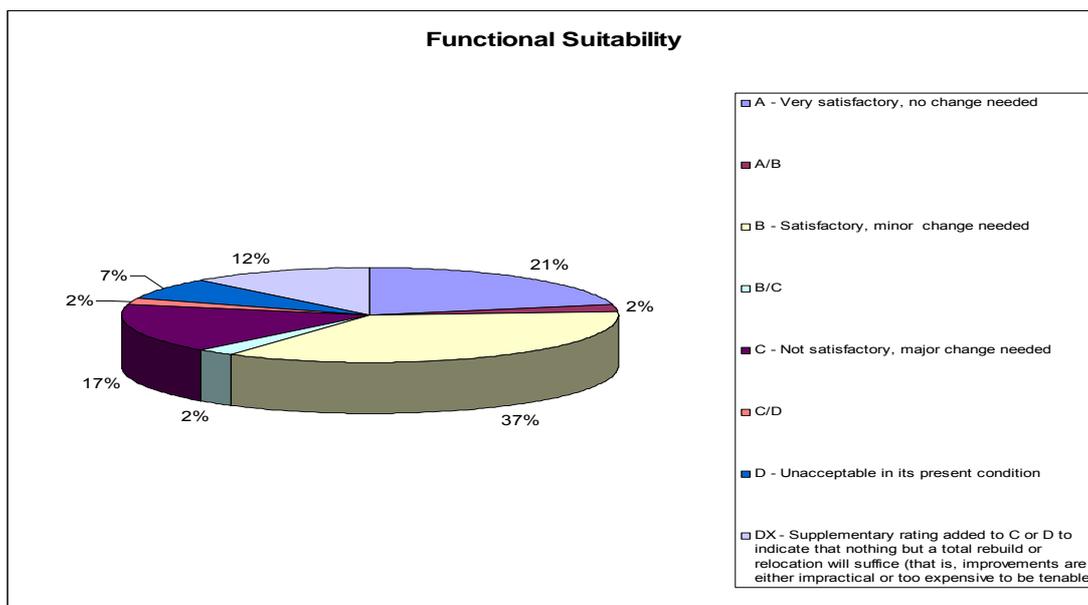


Figure 4.19 Six Facet Survey Outcome: Space Utilisation

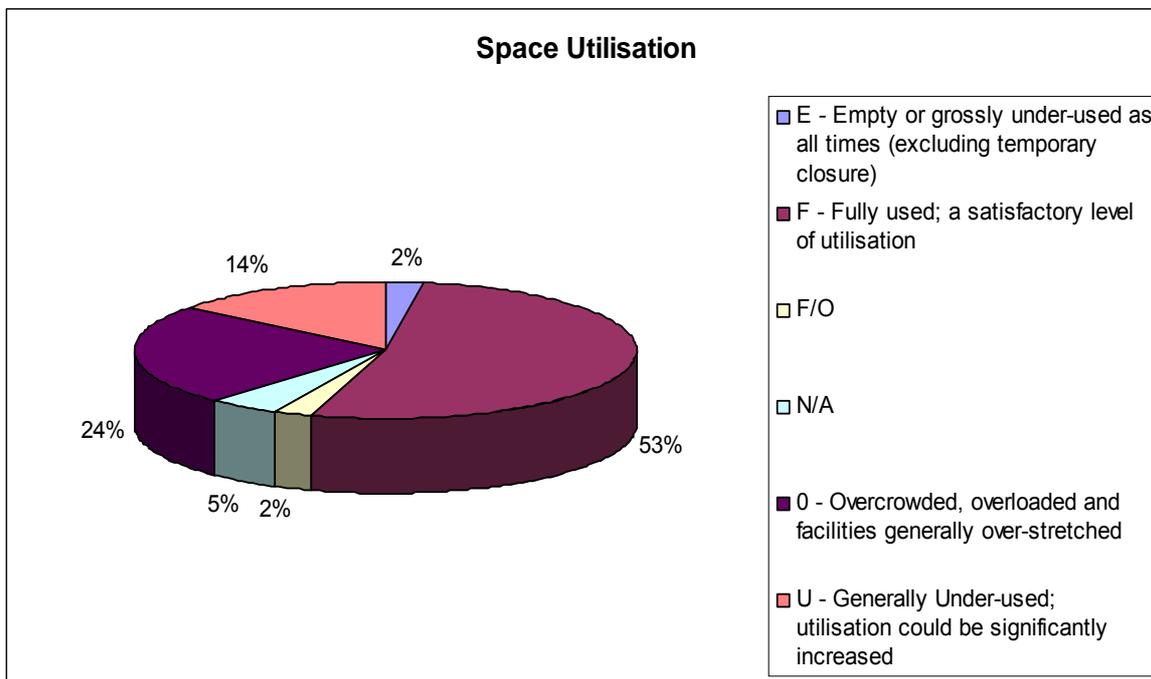
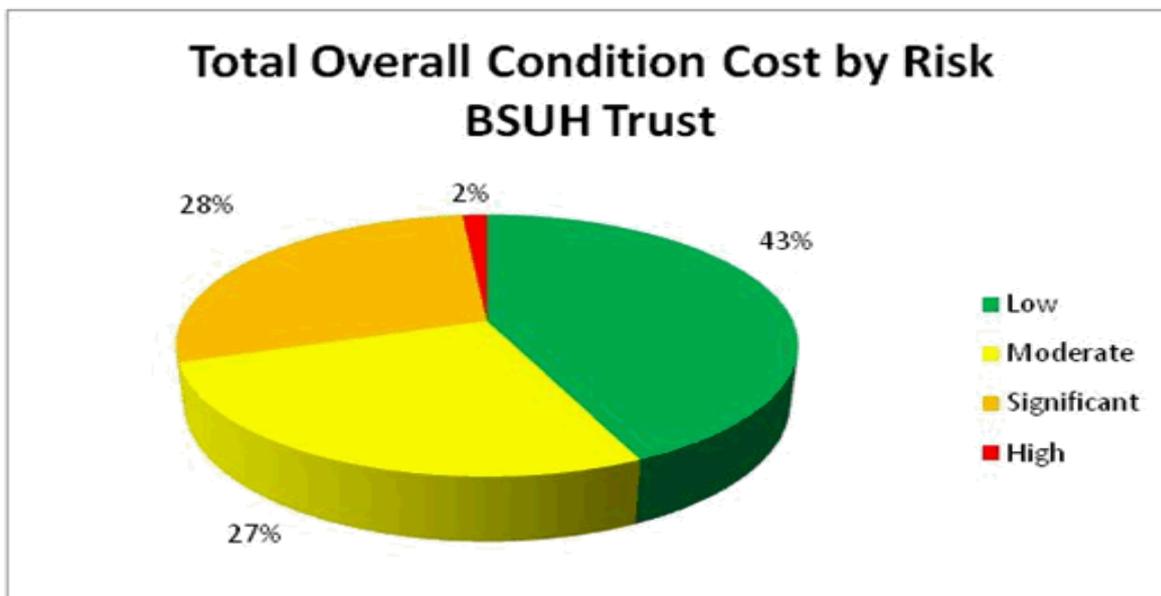


Figure 4.20 Six Facet Survey Outcome: Quality⁵⁰



4.5.37 As described earlier there is a significant amount of backlog maintenance which totals £19.3 million (risk adjusted £ 6.8 million). The 3Ts redevelopment will reduce this to £10.1 million (£4.6 million risk adjusted).

⁵⁰ Updated in 2011

- 4.5.38 The Department of Health has set mandatory energy efficiency targets for all NHS Trusts:
- reduce levels of primary energy consumption by 15% or 0.15 million tonnes carbon emissions from a base year of March 2000 to March 2010 and
 - achieve 35-55 GJ/100m³ energy efficiency performance in all new capital developments, major redevelopments or refurbishments and existing facilities.
- 4.5.39 In addition there is a target from Government for new build developments to be carbon neutral by 2018. This is the stated intention for all government office estate buildings. These targets set by Government form part of the route to achieving the legal requirements of the Climate Change Act for a reduction in UK carbon emissions of 80% by 2050 against 1990 figures.
- 4.5.40 The existing BSUH Estate does not achieve the DoH upper limit of 55GJ/100m³, with a lower target of 35GJ/100m³.
- 4.5.41 Currently the BSUH Trust hospitals performance is as follows:
- RSCH 57.45GJ/100m³
 - RACH 61.21GJ/100m³
 - SEH 68.32GJ/100m³
 - PRH 73.79GJ/100m³
- 4.5.42 Although the Brighton campus achieves good performance against similar hospitals identified in the NHS performance indicators, these are still above the current DH upper limit of 55GJ/100m³. Looking forward at targets for 2020 for the NHS Estate to achieve a 26% reduction in CO₂ emissions (1990 baseline), this target level will need to be reduced accordingly. Looking forward to 2050, further reductions will be required in order to deliver the overarching UK target of 80% carbon reduction on the 1990 baseline.
- 4.5.43 The Trust has recently completed work on a Carbon Management Plan, supported by the Carbon Trust, to reduce its carbon emissions by 25% by 2015. The 3Ts development on the RSCH site will contribute to further carbon reduction in the period immediately thereafter as the development includes a new energy centre for the site which will utilise Combined Chilling, Heat and Power (CCHP) as the primary energy source.

BSUH Research & Development Strategy

- 4.5.44 Brighton & Sussex University Hospitals Trust and Brighton & Sussex Medical School are committed to developing strong and vibrant research programmes that embrace both basic and applied aspects of clinical science. They aim to develop those areas of biomedical and clinical research which were already strong within the local health economy and Universities of Brighton and Sussex (for example HIV, Cancer, Behavioural Medicine and Neuroscience). In parallel they have developed new areas of research endeavour in line with the new BSMS clinical academic appointments at Professorial and Senior Lecturer level, focused on the expertise and interests of those individuals (e.g. Infection and Inflammation, Elderly Care, Stroke Medicine, Vascular Biology and Imaging). They have set out to embrace the opportunities offered in Government's strategy for research in the NHS.

4.5.45 By identifying a limited number of themes where the combined expertise of the medical school, the two universities and the Trust can create a critical mass they aim to make a significant contribution to the health care agenda in the South East of England and UK by pursuing the following goals:

- Goal One is to establish BSUH/BSMS as the principal centre for centre for academic health sciences research in the NHS South East Coast region. This will be achieved by:
 - actively contributing to the delivery of Department of Health's agenda for research in the NHS;
 - strengthening their portfolio of research programmes by fostering links with new academic, industrial and healthcare partners;
 - developing a reputation as a leading centre for research excellence in the following programme areas: Dementia & Neuroscience; Elderly Care, Cardiology & Stroke Medicine; Imaging, Oncology & Genetics; Infection, Inflammation and Allergy; and Paediatrics;
 - providing an appropriate environment to conduct clinical research and nurture the development of aspirant clinical academics;
 - contributing to the successful development of the UK Clinical Research Network through the participation in Network adopted multi-centre clinical trials and
 - maintaining the highest ethical and governance standards in the development and delivery of clinical research projects.
- Goal 2 is to develop and maintain infrastructure that will attract, develop and retain research professionals committed to patient focused research. The aim is to:
 - manage the research facilities efficiently to ensure that they are used to full capacity and that benefits for users specialising in priority areas are maximised;
 - develop a Clinical Trials Unit to support research in the South East;
 - establish a tissue bank;
 - support the development of skills for researchers through the ongoing development of research training programmes, in partnership with the universities;
 - provide comprehensive advice to researchers on best practice, from developing a research question through to publishing the results;
 - continue to develop and expand the academic fellowship programme for doctors by securing funding from the National Institute for Health Research and other sources and
 - develop a nursing fellowship programme in partnership with the Institute of Nursing and Midwifery.

- Goal Three is to develop a portfolio of research projects, clinical trials and programmes focused on improving healthcare and delivery. This will be achieved by:
 - expanding and strengthening existing research programmes by fostering new collaborations with other academic and healthcare institutions;
 - securing investment through opportunities set out in Government's strategy for research in the NHS. to support our research programmes;
 - increasing year on year the number of portfolio studies being run by the Trust and secure service support funding through the UKCRN to support the delivery of Research Network activity;
 - supporting clinicians wishing to develop collaborations with industry or adopt sponsored clinical trials by undertaking financial and contractual negotiations efficiently and
 - working in partnership with stakeholders to secure an inclusive programme of research activity.
- Goal Four seeks to maintain a sensible, safe and streamlined approach to research governance, working as required with the UKCRN and Strategic Health Authority partners. This will be achieved by:
 - providing comprehensive, responsive support to researchers seeking regulatory approval;
 - maintaining a fast, effective and vigorous research governance approvals system;
 - developing a seamless system of approval for BSMS/BSUH collaborative projects and grant applications and
 - ensuring that all projects approved offer value to the Trust and benefit to the service user/patient.
- Goal Five aims to attract and secure increased levels of funding to support the research process through competitive means and partnership arrangements with the Department of Health and Industry. This will be achieved by:
 - ensuring that explicit contractual arrangements exist between all research funders and the Trust;
 - maximising income for development and institutional overheads generated from industry sponsored research through the development of good collaborative working relationships with pharmaceutical companies and Contract Research Organisations;

- working in partnership with the Research Design Service to support researchers in identifying funding and the preparation of funding bids and
- establishing a R&D Trust fund to finance pump priming initiatives, proof of concept studies and small scale research projects that would not readily attract external funding.

Case for Change – Conclusions

- The Trust has identified a compelling case for change which is based on the poor nature of much of the accommodation in which inpatient services for care of the elderly, general medicine, clinical infection (including HIV), neurosciences and cancer are provided. This applies to diagnostic services such as imaging and nuclear medicine;
- The Barry and Jubilee buildings are amongst the oldest still providing acute inpatient care in the NHS – this cannot continue;
- To meet the requirements of the Sussex-wide *Tertiary Services Commissioning Strategy*, BSUH needs to develop and expand services for neurosciences, cancer and trauma;
- To meet the requirements of the NHS South Coast *Healthier People, Excellent Care* BSUH, working as part of the Sussex Trauma Network, needs to develop facilities to provide care commensurate with a Major Trauma Centre;
- Teaching, training and research ambitions for BSUH and the Medical School, which will have implications for patient care across the region, need to be developed further.