

Surgery Futures A Plan for Greater Sydney



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Foreword

We commend this *Surgery Futures* plan to readers. Developed through an extensive consultation process with clinicians and managers over 2010, *Surgery Futures* provides a framework for more detailed planning to transform the key themes to a reality.

This will require a partnership between Local Health Networks, clinicians, surgical networks, the RACS training networks, surgical and nursing professional associations, the NSW Department of Health and hospital clinical teams.

Surgery Futures recognises the need to plan for the significant growth in populations in the South West and North West Sydney corridors. The exciting concepts of high volume short stay surgical services, joint centres and streamlined emergency surgery services will need to be incorporated into planning and design of the new Northern Beaches Hospital, the new surgical services centre at Wollongong hospital and further expansion of hospitals in North Western and South Western Sydney.

Surgery Futures highlights a number of key directions. These include:

- Supporting the provision of high quality, patient centred, accessible surgical services
- Establishing high volume short stay surgical services (HVSS)
- Acceleration of implementation of the Surgical Services Taskforce Emergency Surgery Guidelines
- Separation of the *process* of emergency and planned surgery – but not forcing separation to separate sites, recognising the need to maintain on call rosters and to provide a mix of clinical work attracting and retaining surgeons, anaesthetists and operating room nurses
- Expanding the number of hip/knee replacements undertaken at selected sites to develop major joint centres
- Establishing a surgical technology program within the capital works program
- Supporting the provision of clinically appropriate paediatric surgery in designated hospitals networked with the two Sydney children's hospitals
- Embedding the *predictability* back into the predictable surgery program including the essential elements to make this a reality
- Continued review of what needs a full operating theatre environment vis a vis procedure room or ambulatory care settings and developing the alternative facilities to enable procedures to be done in the most appropriate setting
- Review of ICU availability for surgical patients and future planning of ICUs

- Recommendation of sites for priority future expansion (while not disrupting or moving existing specialty centres/services) of hybrid OTs, complex interventional cross discipline surgery and other specialist services
- Providing an appropriate mix of Local Health Network appointments for surgeons and simplifying credentialing so they have access to each of the better models of care for their patients
- Further work on assessing appropriateness of surgery such as the implementation of hip/knee assessment services - providing both pre admission management and post procedure longer term follow up of outcomes
- Concentrating cataract surgery at a smaller number of centres
- Training for Nurse Unit Managers and other key staff (including the surgical director, registrars and non clinical support staff) on how to run a successful HVSS and other models of care (eg joint replacement centres)
- Electronic RFAs, booking systems and surgeon 'e portals'
- Exploration of new funding models
- Designated bariatric surgery centres

The success of this project has led to an agreement that a *Rural Surgery Futures* Project should be undertaken in 2011.

We look forward to a collaborative and successful implementation of its framework to provide high quality surgical services to the communities served by our public hospitals and new Local Health Networks in Sydney, the Central Coast and the Illawarra.



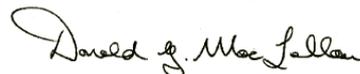
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Executive Summary

Surgery Futures has been undertaken to guide the development of surgical services across the breadth of Greater Sydney (including Central Coast and Illawarra) over the next decade. It also takes the view much further into the future, as changes and investment made now will have an impact for patients and the community for many years to come. This Futures document is a result of work undertaken by the Surgical Services Taskforce, supported by the New South Wales Department of Health. It has involved significant consultation with many clinicians and clinical managers. Its primary aim is to better position Local Health Networks (LHN), surgical services professional bodies, the Department and clinical networks to undertake informed and strategic clinical service and site specific planning for surgery.

The recommended directions for the future development of surgical services that have emerged throughout the project include:

1. Development of **high volume short stay surgery units**: focussing on high volume procedures with an admission of three days or less in order to improve efficiency and the patient experience through promoting rapid admission and discharge processes which facilitate early recovery.
2. Developing centres for **ophthalmic surgery**: these centres for eye surgery aim to improve access, increase efficiency and make better use of existing resources (including workforce). This is justified by the significant growth in projected demand for eye surgery (in particular cataract extraction), the nature of the work, the technologies required and the significant consequences for patients if treatment is delayed.
3. Development of **specialty centres** and their location in the future: this surgery strategy provides the framework upon which future surgery specialty development should occur with appropriate networks to create a coordinated surgical program across NSW.
4. Building upon the Hip & Knee **Joint Centre** concept: the number of hip and knee joint replacements is expected to grow dramatically over the next decade as the full impact of our ageing population is realised. Given the special perioperative, intraoperative and rehabilitation needs of this predominantly older patient cohort and the strong relationship between volume and outcome, a case is made for further development of the joint centre model.
5. Further development and streaming of **planned and emergency surgery**: this is based on the progressing and implementation of the NSW Health Emergency Surgery Guidelines allowing both streams of surgery to be optimised and reducing the impact of emergency surgery on scheduling planned surgery.
6. New investment in Surgery targeted to population growth areas in Greater Sydney

Surgery Futures is not intended to be an in-depth detailed service plan. It is a framework that will act as a catalyst for more detailed planning phases that will occur over the next decade.

The key themes in this document have arisen from many consultations and will facilitate more detailed planning processes for the future of surgery and implementation of new models of care.

Key themes:

- Meeting the needs of the community requires safe, high quality and patient centred surgical services, appropriately networked, and providing an environment that trains, attracts and retains surgeons, anaesthetists, operating room and surgical nurses and support staff.
- If the needs of the increasingly growing, ageing and diversified communities across Greater Sydney are to be met, then some level of reconfiguration needs to occur in the short term, and certainly within the next few years.
- Clinical Networks are critical in enabling change for the future. Clinical Networks facilitate the timely movement of patients to services that will best meet their complex needs beyond LHN boundaries. Clinical Networks also facilitate the sharing of innovations and clinical practice improvements and enable rapid spread. They provide better opportunities for training, research and maintaining clinical skills. Building on and enhancing clinical networks can be achieved without significant structural change.
- Surgical facilities with sufficient volume of surgery can capitalise on emerging technologies and ensure that there is sufficient skill required for patient safety and clinical outcomes. However, volume is only one dimension. Skilled multidisciplinary teams that are adequately resourced and supported are seen as just as, if not more important, than the actual volume of a procedure undertaken by a particular surgeon.
- There are processes that can be implemented without undue delay that can improve patient flow, reduce waiting times and support the workforce. These include streamlined credentialing and fast-track surgery.
- Planning must recognise where the greatest population growth is occurring and capitalise on the opportunities to develop services that will be appropriate for these populations in the future
- Implementation of the Surgery Futures directions requires a commitment at all levels of NSW Health, from clinicians, managers, planners, funders, professional groups, colleges and the community. The implementation plan contained within this paper seeks to provide some guidance on realistic timeframes, accounting for actions that can be taken now, actions that are already in the planning or in the implementation phase, and directions that require significant policy changes as well as those that may be taken as opportunities present.
- Enablers to implementation are highlighted and include workforce considerations, structural changes such as the transition to Local Health Networks (LHNs), funding and policy changes and clinical practice drivers such as clinical practice redesign, technology and new models of care.

It is recognised that many doctors involved in the provision of surgical services work in both the public and private health system. The linkage between the public and private health systems is a positive feature of the NSW public hospital system. Senior doctors who work in the public and private system make considerable personal investment in establishing their practices around certain patterns of surgical services. It is intended that the recommendations contained in this report will allow more appropriate long term planning of surgical services. It is important that changes be appropriately considered and discussed to allow doctors to make necessary changes to their practice over time to work in with the needs of the community.

It is acknowledged that this is not a plan for the whole of NSW. Surgery in the regional and rural areas of NSW requires particular attention as the challenges of maintaining safe and viable services in these environments will bring their own unique challenges and will require a specific response. A Rural Surgery Futures project is planned for 2011.

1. Introduction

Surgery Futures outlines a framework for how public sector surgical services (both elective and emergency) should be developed and delivered over the next five to ten years in the Greater Sydney region, extending from the Central Coast through to Illawarra. This will assist policy makers, health service planners, clinicians, surgical services, professional bodies and managers to capitalise on emerging surgical advances, make effective use of available resources and produce the best outcomes for patients and the community.

A range of factors impact health services in the Greater Sydney region and will influence how surgical services are delivered in the future. These include the National Health and Hospital Reform, the changing demographic and social landscape across Greater Sydney as well as innovation and technological advances.

1.1. Why do we need a Surgery Futures project?

The Greater Sydney region is changing, in terms of population, configuration of clinical and operational networks and funding models. This has driven the need for a vision of how surgical services could be developed and delivered in the next five to ten years.

The 37 hospitals considered in the Greater Sydney region for the purposes of the Surgery Futures project offer a varied range of surgical specialties. These range from large multi-specialty tertiary centres such as Westmead, Liverpool, Royal North Shore and Royal Prince Alfred (RPA) to specialist facilities such as the RPA Institute of Rheumatology and Orthopaedics, Sydney Eye Hospital and the Sydney Children's Hospital Network.

Population growth is a key factor in determining where future investment in health services should be. The focus must be shifted to invest in services that facilitate access by consumers in the large identified population growth corridors, to the West and South West of Sydney, towards Nepean and Camden, with growth rates of between 24 and 34 per cent respectively over the next 10 years.

As part of the national health reform, 18 Local Health Networks replace the current 8 Area Health Services. This structural change offers both opportunities and challenges for a more integrated surgery service across Greater Sydney.

LHNs will hold the responsibility for ensuring the appropriate provision of services for their community. It remains important to ensure long term, state wide reviews of service planning. The input from doctors, nurses and allied health staff working in the system is important for advice on surgical services planning. The recommendations in this report are intended to inform the planning process for LHN Governing Councils in terms of the longer term health needs of their community, including expected areas of growth and ways in which existing services and infrastructure can be best utilised.

- Throughout the Surgery Futures project, clinicians and managers have indicated that the current configuration and mix of services will not meet the needs of our community in the future. They feel that they are unable to take full advantage of changing technologies and models of care. Response to change is currently happening in an *ad hoc* manner.

They are concerned about the sustainability of their current systems and clinicians want to be engaged in designing the solutions.

- Clinicians are signalling that the very nature of surgery is undergoing significant change due to the growth of interventional modalities, diagnostic equipment capabilities and technology. NSW needs to keep pace with these changes to ensure that future demand is appropriately met. The key drivers for change are:
- patterns of disease and community demographics are changing and the demand for some surgery is anticipated to increase (such as laparoscopic procedures and minimally invasive techniques) while the demand for other types of surgery may decrease;
- networks continue to develop locally and nationally, facilitating the sharing of innovations, clinical practice improvements, access to specialised disciplines, and opportunities for training and research;
- the current wide dispersion of surgical services across Sydney results in some services undertaking very small volumes of some surgical activity; and
- an increasing number of surgeons and other hospital specialists work part-time or intend to do so, as well as workforce issues in nursing, pathology, radiology and other professions that support surgery.

1.2. Aim

The aim of Surgery Futures is to guide the development of public sector surgery (both planned and acute) in the greater Sydney region for the next five to ten years. The plan reflects:

- safe, patient centred, accessible and effective surgical practice;
- projected demand for surgery due to demographic changes and disease prevalence;
- anticipated trends in both surgical practice and other clinical services, technology, treatment modalities and diagnostic services that will affect demand for surgery;
- projected patterns of surgical practice in private hospitals, day procedure centres and surgeon's rooms;
- best practice models of care – pre-hospital, in hospital and post discharge;
- an environment that both attracts and retains surgeons, anaesthetists, operating room nurses and surgical unit staff;
- projected medical, nursing and allied health workforce availability;
- training requirements;
- best use of existing and planned public sector resources, including optimising the location and scale of both planned and emergency surgical activity; and

- likely developments nationally in funding models for acute hospital services and health reforms.

1.3. Developing Surgical Futures

Over 400 health professionals have either attended one of the hospital forums or been contacted directly by the Surgery Futures team.

The hospitals participating in the forums within the metropolitan AHS included staff from The Royal Hospital for Women, Sydney Children's Hospital, Children's Hospital Westmead, Royal Prince Alfred, Concord, Canterbury, St. George, POW, Sydney Eye, Campbelltown, St. Vincent's, Liverpool, Royal North Shore, Gosford, Wollongong, Nepean and Westmead Hospitals as well as smaller facilities.

These forums have been successful in engaging a broad cross section of hospital staff and providing the Surgery Futures team with valuable information that informed the outcomes of the project.

A number of consultations with key groups were also completed. These included the Royal Australasian College of Surgeons, Royal Australian & New Zealand College of Obstetricians and Gynaecologists, the State Spinal Cord Injury Service, The Trauma Institute, The Cancer Institute, The Australian and New Zealand Society of Vascular Surgery, NSW Operating Theatre Association, the NSW Chief Nurse and a number of Specialty Networks in the Agency for Clinical Innovation.

1.4. Partnership for Implementation

The RACS NSW State Committee and the Agency for Clinical Innovation in partnership with the SST and the NSW Department of Health, have endorsed the implementation of the Surgery Futures project and the recommendations contained within the report.

The timeline for implementation will be developed by the Department of Health in conjunction with the LHNs, the Clinical Support Clusters and the Surgical Services Taskforce.

2. Surgery Futures for Greater Sydney

From the extensive consultations from the Surgery Futures project, three surgery models emerged. These were:

- High Volume Short Stay services
- Specialty Centres
- Streaming of Emergency and Planned surgery

2.1. High Volume Short Stay services

One of the proposed models of care is to concentrate suitable planned surgical cases in dedicated high-volume, short stay surgical units. There is considerable evidence in the literature that such a model has a number of benefits including improved access to planned surgical services and improved service efficiency in terms of both operating theatre and bed utilisation.

This model assumes that certain operational procedures within the disciplines of plastic surgery, orthopaedics, urology, ENT, ophthalmology, gynaecology, general surgery and vascular surgery, and possibly a few others, lend well to operating within a High Volume Short Stay (HVSS) type model. Examples of procedures include knee joint arthroscopy, TURP, cataract removal and lens replacement, laparoscopic cholecystectomy, hernia repairs and tonsillectomy. Generally, these types of procedures are frequently performed, have a predictable length of stay (not just day only), and are amenable to standard care protocols. However, the procedures are also often dependent upon advanced skills, appropriate operating theatres and appropriate technology.

For the purposes of this project, HVSS surgery is defined as planned treatments requiring admission up to 72 hours. It includes both Day Only surgery and Extended Day Only (EDO) surgery (23-hour surgery). It does not include minor surgery under local anaesthetic conducted in procedure rooms or surgeon's office.¹

The 72 hour timeframe identifies approximately 80% of the planned surgery undertaken in NSW public hospitals.

2.1.1. HVSS Model Design

An HVSS is a dedicated and uniquely identifiable surgical unit. For many HVSS, this will involve use of existing hospital facilities (with assigned operating theatres and dedicated wards within a hospital) to create the service. For other sites it may involve reconfiguration of an existing campus or construction of a new building.

The major features of an HVSS include:

- defined care protocols into and out of the service;
- defined case-mix of procedures and services;

- performed by qualified consultant surgeons and with trainees under consultant supervision;
- clear and safe inclusion or exclusion criteria for the unit;
- expected LOS for all cases is no more than three bed days;
- streamlined pre-admission assessment and preparation
- designated operating theatres and beds;
- dedicated staff that are allocated to HVSS only;
- clearly defined procedures for the management of any unplanned or untoward circumstance;
- enhanced predictability of surgery with no interruptions from emergency surgery; and
- dedicated recurrent funding related to a case mix model.

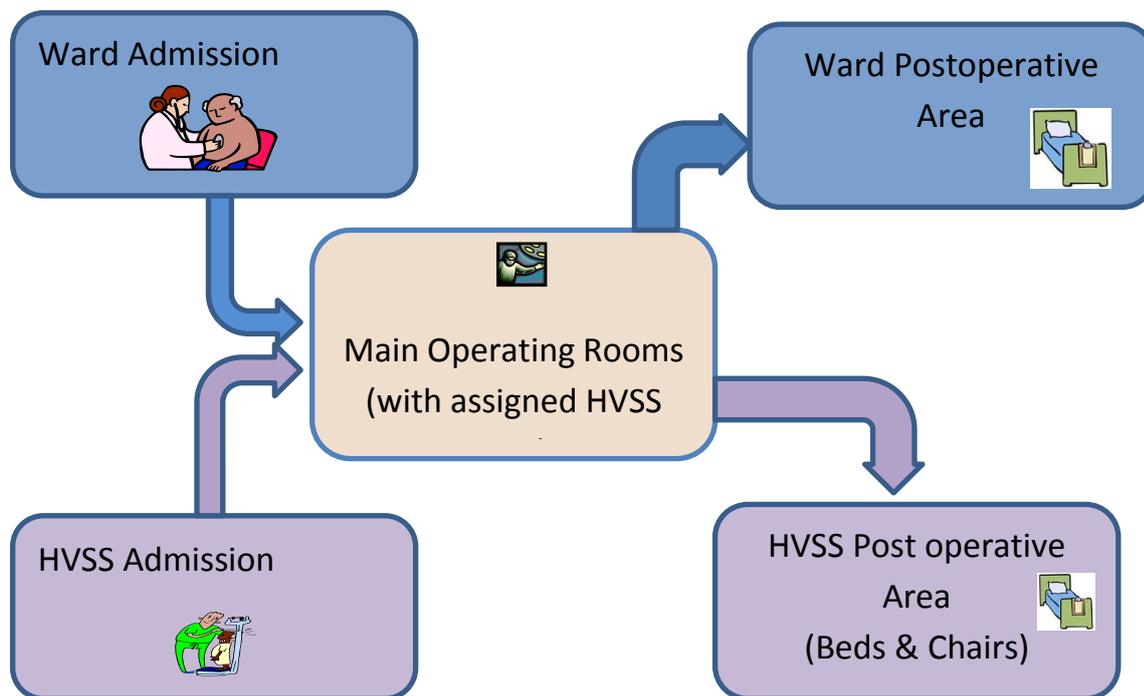


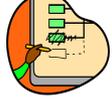
Figure 1: Streaming of an HVSS service in a hospital.

2.1.2. Key Success Factors

The HVSS model builds upon the SST and NSW Health Department's successful Day Only and Extended Day Only (EDO) models by providing a structural incentive to continue to promote minimally invasive procedures and is reliant on appropriate patient selection. It seeks to extend the range of procedures that are suitable for the short stay environment as models of care and medical technologies make early mobilisation and early discharge not only possible but preferable.

The following section outlines key success factors for a HVSS unit adapted from a report based on information gathered from nine sites with short stay facilities in the United Kingdom and United States.²

2.1.2.1. Key Success Factors for Short Stay Facilities

<p>Safety</p>		<ul style="list-style-type: none"> Relationship with support services is crucial to support patients who become unwell. Procedures should be within the capabilities of the unit.
<p>Anaesthetic Pre-assessment</p>		<ul style="list-style-type: none"> Pre-assessment protocols are necessary to increase clinical safety and ensure appropriateness of referral. Certain anaesthetics are more appropriate for different procedures, e.g. spinal anaesthesia rather than general anaesthesia.
<p>Patient Experience</p>		<ul style="list-style-type: none"> Setting patients' expectations (e.g. standardised pathways) early is key to reducing length of stay.
<p>Patient Flow System & Process</p>		<ul style="list-style-type: none"> Standardised pathways and protocols for individual procedures increase efficiency by providing goals and setting expectations for patients. IT support is crucial for efficient pathway progression.
<p>Operational Management</p>		<ul style="list-style-type: none"> Establishment of volume and activity levels should be done early. Planned and emergency cases need to be physically segregated. Nurse Managers need to focus on clinical care and processes. Data management is vital in determining volume, activity and capacity.
<p>Workforce Redesign</p>		<ul style="list-style-type: none"> Innovative workforce models which are evolving and support or enhance delivery of care should be promoted. Ensuring that systems and processes are in place to support people's changing roles. This includes training in new skills, new models of care (such as HVSS units) cultural change and updating skills on a regular basis.
<p>Change Management</p>		<ul style="list-style-type: none"> Early employment and engagement of staff in development of systems and processes provides a sense of ownership. Early development of partnerships with doctors is vital. It is possible to challenge a 23-hour model of care by making more procedures day cases. HVSS director is vital for clinical leadership. Engagement of senior clinicians for change is vital, as clinical leaders influence other clinicians.
<p>Policy</p>		<ul style="list-style-type: none"> Investment into innovation and improvement is crucial to support sustainable change within the health system.

2.1.2.2. Benefits

The benefits of the HVSS model are that it can release additional clinical capacity (including beds, staff and other resources) within tertiary / quaternary surgery centres and provide the opportunity for reinvestment of this additional capacity into other areas of complex service needs. Most importantly, it can improve the patient experience by reducing waiting times for surgery, improving the patient perception of care through the delivery of standardised care pathways through dedicated short stay surgical facilities and increasing the predictability.

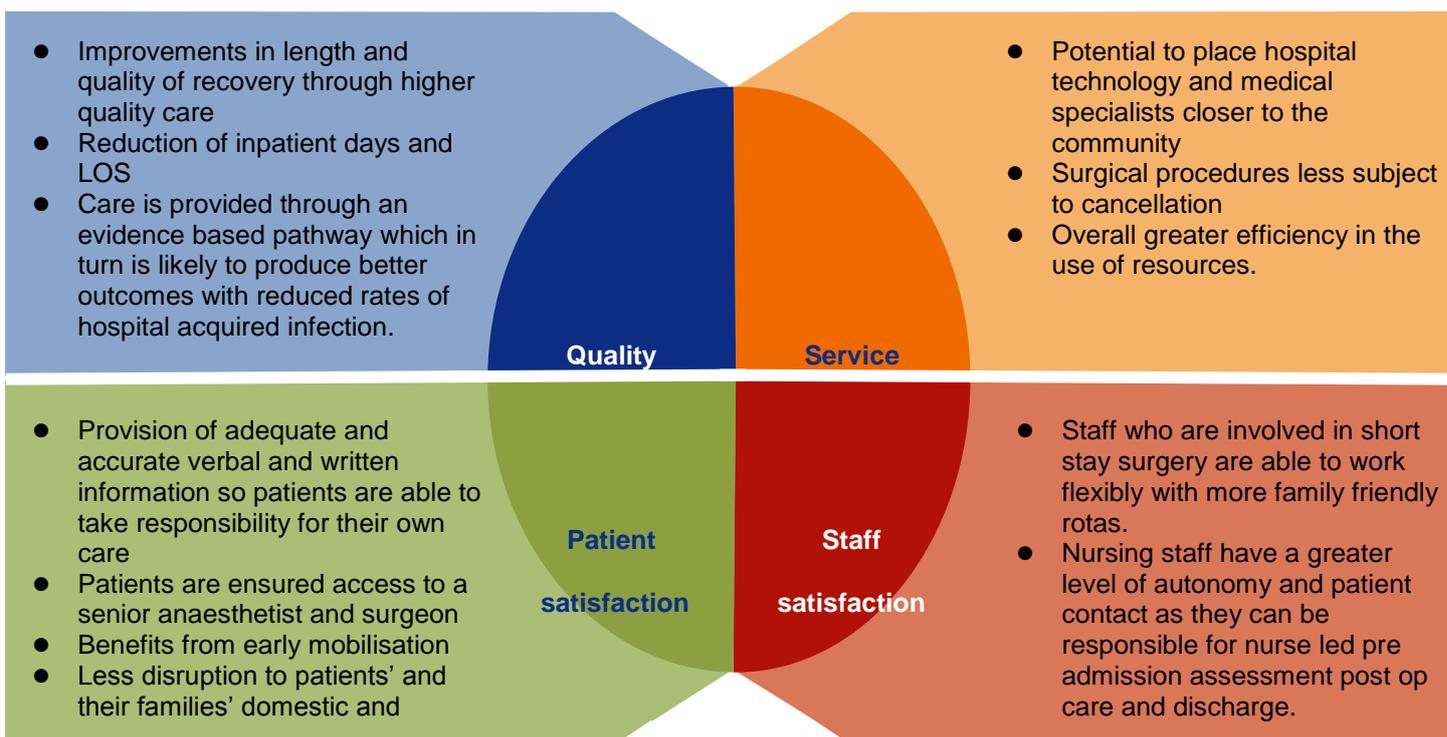


Figure 2: Benefits of the HVSS model³⁻⁵

HVSS facilities have the potential to create significant efficiencies and cost savings. Studies have found that hospital costs for day surgery are 11 to 68 per cent lower than for the same procedure on an inpatient basis.⁶ Similar benefits would be expected from the development of the HVSS model.

Increased Bed Utilisation

The literature also suggests that these models improve management of bed capacity.

HVSS units will enable:

- improved bed turnaround times through reduced length of stay (LOS); and
- improved accuracy in prediction and communication of bed availability and demand

Reduction in LOS

As cases move into the HVSS unit, there is an increased focus on reducing the LOS of short stay cases to Day Only or to Extended Day Only. A recent evaluation of The Alfred Centre in Melbourne found that there was an increase in surgery throughput and a concurrent reduction in the average LOS for both inguinal and femoral hernia (an approximately 60 per cent reduction) and thyroid procedures (an approximately 44 per cent reduction) when they were treated as short stay patients as compared to admission in the Alfred Hospital.⁷

2.1.2.3. Options for HVSS services in Greater Sydney

The HVSS model is one of the most important building blocks for shaping the future of surgery in NSW. It provides a real opportunity to change current practice and processes and to enable maximisation of investment in new equipment and technology to ensure NSW surgical services remain at the forefront of innovation for the next decade. This plan is not static and, whilst the options presented here are a starting point, it would be expected that the plan will be flexible enough to accommodate new developments in technology and models of care into the future.

Presented below are options for the development of HVSS units across Greater Sydney. At present, some HVSS activity occurs in almost every hospital but, other than in a few instances, is not organised in such a way as to make best use of resources and reduce access block in both theatres and beds. This does not mean that HVSS centres are the only location in which short stay procedures can be undertaken, but rather investment for the future should be focussed on a smaller number of centres.

Hospitals not specifically designated to have an HVSS, would appropriately continue to provide a combination of short stay and longer stay surgical services. It is therefore recognised there will always be some short stay surgery undertaken in these facilities.

The plan provides the vision and roadmap for the establishment of HVSS units in Greater Sydney for 2021. While some of these HVSS units could be functioning relatively quickly, others will be enabled through capital and service development opportunities as they present over the next 10 years.

Based on detailed data modelling, the projected number of operating theatres and surgical beds allocated to the HVSS has been calculated for 2021.

The model assumes that private hospitals across Greater Sydney that regularly undertake short stay surgery would continue to do so. Through the consultation phase of this project, several large private hospital organisations indicated that they were seeking to build capacity for the future, which may present some opportunities in terms of future clinical service planning.

The model also assumes that flows within and across LHNs would continue to occur. It is reasonable to predict that these flows could change, reflecting where each HVSS unit is located. Surgeon movement, patient choice and major transport routes also influence these flows and will need to be considered in more detailed clinical service planning.

The HVSS model requires that surgeons have appointments and access to the relevant HVSS facility across LHN boundaries as necessary, regardless of where their primary hospital or LHN base is located.

The model is built around an efficiency factor of 15 per cent in terms of improved bed utilisation as it assumes, based on the available evidence, that a move to the HVSS model can increase both procedural and patient flow efficiencies in the order of 10 to 20 per cent. As there will always be a cohort of patients requiring care within a more acute facility for reasons such as complex co-morbidities or psychosocial factors, the model also assumes that 80 per cent of all planned short stay activity could safely move to the HVSS model of care.

2.1.2.4. Local Health Networks

The establishment of LHNs on 1 January 2011 provides a new framework for public hospital management and increases local accountability to drive improvements in clinical outcomes and service performance. LHNs are accountable for service quality, clinical governance and effectiveness must be responsive to their patients' needs and are key parts of a wider statewide integrated clinical networks of services.

They will work closely with Primary Health Care Organisations (Medicare Locals) which are being established by the Commonwealth.

South Eastern Sydney LHN

Volumes in South Eastern Sydney are such that it is reasonable to have more than one HVSS unit. South Eastern Sydney is projected by 2021 to require 3.7 more theatres and 13.5 additional beds for short stay activity. POW is the campus most suited to becoming the HVSS centre as it has the capacity to develop these services in conjunction with the separation of planned and emergency surgery. Geographically, it is well located and, whilst there would need to be transitioning of services as HVSS reduced in other facilities. Canterbury could also develop an HVSS and there would be capacity in Canterbury to absorb some of the work currently undertaken at St George. As part of the surgery future for Sydney, it is essential that the LHN clarify and resolve the roles of the major teaching facilities to ensure that future investment in surgery supports the direction of the surgery plan. RHW is a major provider of HVSS gynaecology services and this should continue to be developed.

Sydney/Sydney Eye Hospital already provides HVSS services in its current role and, whilst there is the opportunity to increase this role, it would be across those specialties currently being serviced i.e. Ophthalmology, ENT and hand surgery.

St. Vincent's HN

St. Vincent's Hospital has sufficient planned surgery that would suit the development of an HVSS. This HVSS should be planned in conjunction with HVSS development in South Eastern LHN.

Western Sydney LHN

Western Sydney is projected by 2021 to require 3.6 more theatres and 14.5 additional beds for short stay activity. Given the population growth predicted for this area, it is reasonable to suggest that at least two HVSS units would be needed to service this activity.

Whilst Auburn is well located to provide a HVSS service, Mount Druitt also offers some potential once the procedure/endoscopy room construction is completed in January 2011 and developments at Nepean are completed in early 2012. Blacktown will be a centre of population growth and will see increasing complexity and demand for investment in surgical

services. Whilst needing to balance specialty demand, there may be a necessity to provide a HVSS service in Blacktown for some specialties as the additional theatres available in Auburn and Mount Druitt may not be sufficient to service the full demand. Blacktown should continue to provide the urology short stay service.

Central Coast LHN

With a projected number of 1.8 additional theatres and 6.4 additional beds that will be devoted to short stay activity by 2021, Wyong could develop a HVSS unit. However, there may be a necessity to provide a HVSS service in Gosford for some specialties based on current service location (eg urology) as the additional theatres available in Wyong may not be sufficient to service the full demand. Due to the distances between Gosford and Wyong and the transport limitations, it is anticipated that a number of services should be maintained at both sites.

Sydney LHN

The Sydney network will need 3.1 additional theatres and 12.1 additional beds to service short stay activity across the network. Currently, there are significant volumes of HVSS activity at both RPA and Concord and, if capacity is to be created at these sites to meet the demand for more specialised surgery for the future, then the development of Canterbury as a HVSS site to cope with the demand would be appropriate. Investment in Canterbury for urology services is also likely to draw patients from the St George area which would support local access. There will continue to be a need for some HVSS services at Concord whilst services are being reorganised between the hospitals. Concord may also draw patients from the Northern Sydney catchment area as pressure on RNSH capacity continues until the Northern Beaches hospital is built.

South Western Sydney LHN

South Western Sydney will see significant population growth over the next 10 to 20 years. By 2021, short stay planned activity will require an additional 6.6 theatres and 23.7 beds to support demand.

Campbelltown particularly will need to respond to large growth over the next 10 years. The Campbelltown clinical service plan could incorporate an HVSS service to meet future demand as part of the development of a new model of surgical care. In the shorter term, Bankstown will need to continue to provide HVSS services to meet demand and both Bankstown and Campbelltown should absorb HVSS services from Liverpool to create capacity at Liverpool for development of more specialised surgery services.

Illawarra and Shoalhaven LHN

The population in the Illawarra region is projected to grow rapidly over the next 10 years. Short stay planned activity is projected to require an additional 2.6 operating theatres and 9 beds by 2021.

It is already planned to increase surgical capacity at Wollongong Hospital, and it would be appropriate to ensure that this includes the development of a HVSS service and further support the streaming of planned and emergency surgery. The current urology arrangement with Figtree Private Hospital will need to be reviewed in the context of the development of an HVSS at Wollongong.

Shellharbour also has the potential to provide a HVSS service in the future as population growth is greatest in this corridor. Shellharbour has capacity for development on site, and transport corridors along this stretch of the Illawarra are good. The development of surgery at both Wollongong and Shellharbour requires a detailed local planning study to ensure complementary development but provides one of the best opportunities for implementing the future model.

Northern Sydney LHN

Northern Sydney will require an additional 1.7 theatres and 6.0 beds for planned short stay activity by 2021. Whilst the potential of a new Northern Beaches Hospital would be the logical option for the development of a new HVSS unit in this network, existing facilities such as Hornsby could offer some shorter-term opportunities. Urology services currently provided at RNSH should continue until the Northern Beaches Hospital is built.

Nepean Blue Mountains LHN

Nepean Blue Mountains is projected to require an additional 1.4 operating theatres and 4.8 beds by 2021. In the short term, it is recognised that a limited HVSS facility could be offered at Nepean Hospital until completion of the new theatres and beds. Mt Druitt will continue to support Nepean until the new building in Nepean is completed.

2.1.3. Ophthalmology Centres

Ophthalmic surgery is highly suited to the HVSS model of care. The majority of eye surgery, particularly cataract surgery, is already undertaken as a day only separation or as an outpatient procedure. An overnight separation is required for major retinal, corneal, scleral and conjunctival surgery and for glaucoma surgery. However, approximately 98 per cent of patients undergoing eye procedures are discharged within three days.

While the length of stay for much eye surgery is short, the equipment required to deliver this short stay surgery is technologically advanced and expensive; the instruments highly specialised and generally not suitable for other types of surgery. The staff are also specialised for this type of surgery and support personnel including technologists are critical in providing a quality service.

It is essential that that centres providing eye surgery have appropriate equipment, instruments, facilities, technological support and the trained staff to deliver best practice eye surgery. Minimising unnecessary duplication of eye surgery across Greater Sydney should ensure the appropriate level of investment for ophthalmology centres required to match the demand of the population in the next five to 10 years. At the same time, it is possible to concentrate ophthalmical resources while ensuring patients have access to these centres without undue travel difficulties.

Currently, there are a relatively large number of hospitals undertaking eye surgery across Greater Sydney. Very few Area Health Services have consolidated their eye services. An exception is Sydney/Sydney Eye Hospital which successfully provides eye surgery for most of the South East Sydney population and is a good example of the eye centre model being proposed. The current range of hospitals undertaking eye surgery is too large and will not facilitate the significant investment requirements for high technology, best practice eye surgery in the future.

Caution should be exercised when viewing hospital eye surgery data. It is important to be aware that the eye surgery undertaken as an outpatient procedure is generally not captured in hospital data sets.

2.1.3.1. Development of Ophthalmology Centres

There are some immediate options for development of eye surgery centres. These options require refinement through more detailed service planning. However, these initial options should facilitate the development of significant ophthalmology centres over the next five to 10 years.

South Eastern Sydney LHN

Sydney/Sydney Eye should continue as an eye centre and could expand its services for patients currently going to POW, St. Vincent's and Sutherland Hospitals.

St. Vincent's HN

It is not anticipated that St. Vincent's Hospital would develop as an eye centre with the proximity of Sydney/Sydney Eye Hospital.

Illawarra LHN

Shellharbour Hospital currently has a reasonable load of eye surgery and could be developed to take most cases in Illawarra.

South Western Sydney LHN

It is not anticipated that Liverpool Hospital would develop as an eye centre. With capital investment planned for Campbelltown Hospital, it would be reasonable to include an eye centre there. Patients going to Liverpool Hospital for eye surgery should be able to access either Campbelltown or Bankstown Hospitals in the future. It is recognised that Bowral provides both day only and overnight ophthalmology and this should continue pending clarification of the role for Bowral Hospital within the network.

Sydney LHN

It is not anticipated that RPA would develop as an eye centre. Those patients could access either Concord Hospital or Sydney/Sydney Eye. Concord Hospital could increase its eye surgery load to accommodate RPA patients and could also accommodate some patients from Northern Sydney catchment.

Northern Sydney LHN

RNS Hospital currently services this population. When the Northern Beaches Hospital is developed, it would be appropriate to develop it as a specialised eye centre.

Central Coast LHN

Both Gosford and Wyong currently service their local populations. These roles could continue or capacity should be built up at Wyong over time as part of the transition plan for HVSS development, recognising that there will continue to be some ophthalmology services at Gosford. This should release capacity at Gosford to accommodate the high emergency surgery load.

Western Sydney LHN

Westmead Hospital currently services the population through a purpose built outpatient facility and this could be further developed as an eye centre. There are a small number of

cases managed via Auburn that should return to Westmead, thereby “freeing up” capacity at Auburn for the role as an HVSS centre.

Nepean Blue Mountains LHN

Springwood Hospital should continue the role of providing eye services. These services should also continue to be provided at Lithgow given its relatively rural location.

2.1.3.2. Potential Future Ophthalmology Centres

While the hospitals named are suggested for specialised eye centres initially, not all would provide the full range specialised eye services, such as vitreo-retinal surgery. An option for these highly specialised services would be to locate them only in Westmead, Northern Beaches, Sydney/Sydney Eye Hospital and Campbelltown Hospitals.

2.1.4. Overview of Impact

The table below summarises the potential impact of the implementation of the HVSS model in terms of the change in capacity (operating theatres and beds) now and in 2021, that will need to be allocated to service the projected activity that meets the HVSS criteria (LOS 3 days or less). Providing this capacity will occur through a mix of reconfiguration of existing wards and theatres, together with targeted expansion in the major population growth corridors.

Table 1: Impact of HVSS Implementation Beds and Theatres 2010 -2021

Catchment	All HVSS Specialties			
	Beds		Theatres	
	Now	2021	Now	2021
South Western Sydney Total	50.7	74.4	13.7	20.3
Sydney Total	58.4	70.5	14.1	17.2
Central Coast Total	23.0	29.4	6.3	8.1
Northern Sydney Total	27.2	33.2	7.3	9.0
Western Sydney Total	35.5	50.0	8.9	12.5
Nepean Blue Mountains Total	15.2	20.0	4.2	5.6
Illawarra Total	27.4	36.4	7.7	10.3
South Eastern Sydney Total	58.3	71.8	14.7	18.4
GRAND TOTAL	295.7	385.7	76.8	101.3

2.2. Specialty Centres

Specialist surgical centres are an increasingly common model of care in Australia. They are already popular within America and the UK and feature organisations with strong clinical leadership and multidisciplinary decision-making. Specialist centres in New South Wales already exist with adult burns treated only at Concord and Royal North Shore, paediatric

burns at Children’s Hospital Westmead, complicated eye surgeries performed at Sydney Eye Hospital, spinal injury surgery provided by Prince of Wales and Royal North Shore hospitals, complex paediatric surgery only undertaken at Children’s Hospital at Westmead and Sydney Children’s Hospital and organ transplantation in designated hospitals.

This surgery plan provides the framework upon which future surgery specialty and sub-specialty development should occur in order to create a coordinated surgical program across NSW. Specialist centres require substantial physical resources e.g. hybrid operating theatres, and the expertise of many specialised clinicians including physicians, nurses, technologists, interventional radiologists, intensivists and other vital support personnel. Development of these centres could increase efficiency, reduce costs and improve their quality and attractiveness to specialist surgeons, anaesthetists, surgical nurses and other health professionals. Services such as neurosurgery require detailed planning to ensure that not only are high cost resources used appropriately and situated in places that optimise access to specialised time critical care but also that adequate support services (imaging, ICU etc) are available. This includes maximising use of interventional radiology services across different specialties where these are located at the same site.

The international Advisory Board⁸ study into the future of surgery stated that hospitals and health systems that have invested in comprehensive specialty centres see performance improvements across multiple dimensions



Figure 3: Performance improvements from development of specialist centres

Throughout the consultations and workshops for Surgery Futures, many clinicians and managers have discussed the opportunity for networking of sub-specialties into designated specialty centres. Part of their stated rationale is to reap the benefits of being part of a larger unit including ready access to high cost, complex medical technologies, enhanced clinical service and information system development, recruitment of specialists, improved working conditions (on call etc) and developing more rational referral processes.

The literature and overseas case studies illustrate that a small number of centres can service large populations for high end sub-specialties such as neurosurgery. The South West London Elective Orthopaedic Centre, whilst undertaking most orthopaedic procedures, is a designated centre of excellence for joint replacement. The Montreal Neurological Hospital (MNH) is an ultra-specialized academic medical centre providing services to the whole of Quebec as well as accepting patients from across Canada.

2.2.1. Neurosurgery

It is recognised that spinal surgery which targets the vertebral column is undertaken by both neurosurgeons and orthopaedic surgeons and will continue to be provided at hospitals across the Greater Sydney region. The Surgery Futures discussion of neurosurgical specialist centres relates to neurosurgery that is undertaken solely by specialist neurosurgeons in specialist neurosurgical units, apart from life threatening situations requiring emergency surgery (eg burr holes).

The current model of service provision is based on there being a neurosurgery specialist centre at each trauma and/or major tertiary facility. This has led to the multiple centres that exist today. Changing the model to one where rationalization occurs so that a smaller number of centres provide the majority of services would enable targeted investment in state of the art high cost equipment and complement a state-wide Interventional Neuroradiology (INR) Service.

There is little evidence to support multiple small centres when large centres such as the MNH with 85 beds and four surgical suites, service a population of over seven million.

Within metropolitan Sydney, 32 facilities reported undertaking neurosurgery in 2008-09. Of these, 22 facilities undertook less than 50 procedures and, in most cases, these related to non spinal emergency procedures. This leaves 10 facilities within metropolitan Sydney providing neurosurgical services with approximately 150 beds.

Growth in neurosurgery overall is projected at approximately 1.8 per cent per annum (NSW Acute Inpatient Projections 2009) with slightly greater growth in non-spinal procedures. The majority of neurosurgery is planned and does not fall within the HVSS model of care. The largest areas of growth are likely to be neurovascular with interventional neuroradiology procedures increasing.

Some Area Health Services have already consolidated services for spinal, non-spinal or both within their network. This pattern should continue for spinal surgery with opportunities for further rationalization to be explored.

Population growth will be predominantly in the North West and South West metropolitan areas and investment in new beds (projected that 20 are required by 2021) should occur in the centres that will service these areas into the future. There does not appear to be demand that would justify investment in new neurosurgical specialist centres.

South Western Sydney LHN

Liverpool is established as the neurosurgical specialist centre and should expand capacity to accommodate the expected demand from the South West growth corridor. Whilst Campbelltown will experience substantial growth in surgery, the role should complement Liverpool and investment in a second neurosurgical service is not warranted. A small

amount of spinal neurosurgery is undertaken at Bankstown. This could continue within the context of Bankstown becoming a HVSS centre and continuing to support Fairfield as the joint arthroplasty centre for South Western Sydney.

Sydney LHN

RPA should be the neurosurgical specialty centre. The non-spinal neurosurgery currently undertaken at Concord could be transferred to RPA (and/or RNSH). Spinal neurosurgery could continue to be provided at Concord – consistent with seamless transfer to rehabilitation or transfer to RPA or IRO. These would be assisted by transfer of resources sufficient to recommission existing theatre capacity. The model needs to be structured to support the timely transfer of patients out of RPA to other hospitals for post acute care.

Central Coast LHN

Central Coast should continue to refer all cases except where emergency non-spinal neurosurgery is necessary.

Northern Sydney LHN

RNSH should continue to be the neurosurgical specialty centre. However, the model needs to be structured to support the timely transfer of patients out of RNSH to other hospitals for post acute care. Neurosurgical services should not be a feature of the new Northern Beaches hospital when it is built.

Western Sydney LHN

Westmead should continue to be the neurosurgery specialist centre. It is already providing a specialist service to the Children's Hospital at Westmead. It could be the neurosurgical and INR centre for patients from the Nepean Blue Mountains Network as well as Western Sydney. Taking workload from Nepean would require "freeing up" theatre and bed capacity in Westmead. The model needs to be structured to support the timely transfer of patients out of Westmead to other hospitals for post acute care.

Nepean Blue Mountains LHN

Westmead should continue to provide non spinal neurosurgery services to the Nepean Blue Mountains LHN, except for emergency cases that cannot be clinically transferred. Spinal neurosurgery should continue at Nepean which will complement their role as a major provider of orthopaedic services. This could assist in creating capacity for the increase in operating theatre and bed requirements at Nepean.

Illawarra LHN

South Eastern Sydney LHN should continue to provide non-spinal neurosurgery services except for emergency cases that cannot be transferred. Spinal neurosurgery should continue at Wollongong which complements Wollongong's role as a major provider of orthopaedic services.

South Eastern Sydney LHN

Services within South Eastern Sydney need to be developed consistent with a role for the network which contains specialist centres but does not duplicate specialist surgery services. Spinal neurosurgical services should remain at the POW campus which is consistent with their role as one of the two state spinal injury centres. POW provides specialist neurosurgery services to Sydney Children's Hospital and, from both the perspective of location and volume, is the most appropriate location for these services to be developed.

St Vincent's HN

With the suggested development of POW and RPA as major neurosurgical specialty centres, to avoid further duplication of major specialty centres in inner Sydney there would not appear to be a requirement for further expansion of specialist neurosurgery at St. Vincent's Hospital.

Detailed clinical service planning should determine how best to develop neurosurgical specialist centres further, but planned growth investment should certainly be in the centres closest to the growth areas – Liverpool and Westmead.

2.2.2. Interventional Neuroradiology

Currently, INR services are provided at seven major teaching hospitals based on local prioritisation rather than any state based plan. A new private service is being provided from Macquarie Private Hospital.

Evidence from overseas and interstate indicates that a state funded INR service with technology investment at a small number of sites and multi-network cross accreditation for the specialist medical staff would lead to better access for patients and a more efficient service. Investment at Westmead, POW, RNSH, RPA and Liverpool would be consistent with where neurosurgical and vascular specialist services are being provided. Services to other major hospitals could be provided on an on-call and rotation basis.

Whilst technology investment could be directed to these five sites, medical staff could be primarily located at one or two sites to create a critical mass for the provision of an outreach service. To maximise investment, the service should be developed and resourced in line with a state based plan.

2.2.3. Cardiothoracic Surgery

The issues for cardiothoracic surgery are very similar to non-spinal neurosurgery in that they are high cost, highly specialised services requiring complex supporting services. As has been noted generally, the model of most teaching hospitals providing cardiothoracic surgery is not consistent with the evidence and overseas models where larger specialist centres have been developed. In a review, published in JAMA in 2000, eleven published studies on coronary artery bypass graft surgery (CABG) showed better outcomes with higher volumes; the difference was statistically significant in 9 of them⁹.

With the rise in interventional cardiology and no predicted increase in requirements during the timeframe of the plan, there is no evidence to support an increase in the number of cardiothoracic centres across Sydney. Given the projected population growth corridors investment in cardiothoracic surgery services should be at Westmead and Liverpool as the current tertiary centres most closely located to the growth areas. Provision of interventional cardiology can continue to occur in some sites which do not provide cardiothoracic surgery services.

2.2.4. Gynae-oncology

Gynae-oncology surgery involves high complexity surgery and often a number of different sub specialty surgeons as well as a multi-disciplinary support team. Gynae-oncology surgery is only undertaken at a small number of major hospitals, and there are outreach consultation models in place from these specialty centres. There are, however, still opportunities to further review these services across the system in line with the development of cancer

centres, thereby maximising investment in this area and improving access to the multidisciplinary services for all patients. Further plans for gynae-oncology surgery needs to be undertaken within the context of the new NSW Cancer Plan.

2.2.5. Paediatric Surgery

The focus for paediatric surgery within this plan is the relationship between the specialist paediatric hospitals and other hospitals. The plan does not specifically deal with paediatric surgery within and between the specialist hospitals as this is a separate process associated with the establishment of the Sydney Children's Hospital Network.

There has been a reduction in paediatric surgery undertaken outside the two paediatric hospitals, resulting in more routine cases being undertaken by the two specialist centres. The reasons for this are varied but in some cases, appear to be generated from operational decisions made at a local Area/facility level to discontinue the provision of paediatric surgery. Throughout the consultation process, many surgeons expressed a desire to be able to undertake more routine paediatric surgery locally, and this is clearly an issue that warrants further exploration.

The relationship between the paediatric hospitals and surgery services at other hospitals is important in ensuring that children have the best access to surgery in a timely manner. There should be clear agreement about what paediatric surgery can be undertaken elsewhere, what minimum volumes are required and what opportunities for improvement exist within the current system. It is reasonable to expect that paediatric surgery, together with appropriate supporting resources, should be undertaken at sites including Campbelltown, Wollongong, RPA, RNSH (or Northern Beaches in the future), Bankstown, Blacktown and Nepean.

A Paediatric Surgery Model for designated Area Paediatric Surgical sites was developed in 2008 and this plan provides a framework for the development of clinically appropriate paediatric surgery services in selected general hospitals in Greater Sydney.

In order for this to occur, the Sydney Children's Hospital Network (in conjunction with the broader surgical community) needs to develop models of care that both encourage participation by surgeons and anaesthetists in other sites and support them through outreach, on call or other service models.

2.2.6. Urology

The notion of urology specialist centres was discussed during the consultation and, whilst there are a very small number of highly specialised urology procedures that require complex support, the major opportunity is in the area of HVSS. There is however a need for the continued development of cancer urology services, and these should be located in the main cancer centres – Liverpool, RPA, RNSH, Westmead and POW and align with the new NSW Cancer Plan.

Specialty centres for urology alone (as opposed to being part of a multispecialty HVSS) will depend on volumes (currently 27 hospitals within metropolitan Sydney reported urology procedures either in procedure rooms or operating theatres) and movement to a smaller number of centres would support investment in equipment and technology.

The model of appointment for surgeons will be critical as some surgeons will want to work in both cancer and non-cancer services, whilst others will prefer one of the sub-specialties. The portability of credentialing and appointment opportunities to major cancer centres will be a significant enabler in establishing a smaller number of centres.

Some existing HVSS models should continue, e.g. Blacktown providing services for Sydney West and Gosford being the main centre (supporting Wyong) in the Central Coast. Planning for HVSS units at Nepean, Campbelltown and Wollongong should incorporate urology. The development of the HVSS and Cancer Centre at POW will support it as the Urology centre within SES. RNSH can be both the Cancer Centre and, in the short term, provide an HVSS service for Northern Sydney and thus support the location of the urology services. In the longer term, with the development of the Northern Beaches hospital HVSS, the short stay urology services could move out of RNSH creating capacity for more specialised surgery.

2.2.7. Hip and Knee Arthroplasty Centres

Demand for hip and knee arthroplasty surgery is growing in Australia at a rate of approximately five to eight per cent per year with knee arthroplasty now outstripping hip arthroplasty in volume. The surgery requires high cost equipment, specialised instrumentation, specialised staffing and imaging support. The patient's recovery is dependent on accurate pre-operative assessment of co-morbidities including mobility restrictions, assessment of requirement for physical aids and a specialised rehabilitation program post-operatively.

Currently, there is considerable variation in the length of stay following arthroplasty surgery in NSW and in the requirement for inpatient rehabilitation services. There is major variation in the purchasing costs for joint prostheses and there is only a limited system for optimising these costs in most hospitals. There are currently a large number of hospitals doing joint arthroplasty surgery across Greater Sydney. Rationalization of joint arthroplasty centres would ensure the appropriate level of investment that is required to match the demand of the population in the next five to 10 years.

It is essential that that centres providing joint arthroplasty surgery have the most modern equipment, instruments, facilities, technological support and trained staff to deliver best practice surgery. At the same time, it is important to design joint arthroplasty centres which ensure patients have access to these centres without undue travel difficulties.

Joint arthroplasty surgery cannot be considered in isolation of other elective and emergency orthopaedic surgery. If feasible, it would be advantageous to co-locate these orthopaedic services on a single campus, but that may be restricted by the availability of adequate numbers of operating theatres and/or beds.

Very few areas have consolidated their joint arthroplasty services. Exceptions are the Institute of Rheumatology and Orthopaedics (IRO) at RPA and the Whitlam Joint Centre in Fairfield Hospital. These are good examples of the joint arthroplasty centre model being proposed. The current range of hospitals undertaking joint surgery is too large and will not facilitate the significant investment requirements for high technology, best practice joint arthroplasty surgery in the future.

Given the high demand for services and patient referral at different stages of disease progression, hospitals need to determine urgency for surgery. Waiting lists can be used to prioritise patients in order to ensure that hospital resources are used efficiently and equitably.

Long waiting times for hip or knee Joint Replacement Surgery (JRS) are known to compromise health outcomes. Therefore, it is important that surgery is undertaken with minimal delay. Some people waiting for JRS have been shown to have very poor health-related quality of life and high psychological distress.

During the last 10 years the number of hip and knee joint replacement procedures in NSW has increased substantially. Osteoarthritis is the primary cause of joint deterioration leading to joint replacement surgery. There is a requirement to develop a system that facilitates the management of patients who may require JRS. An ideal service delivery model would ensure maximal non-medical management and provide equitable access for patients to surgical services. This should be based on a dynamic system that responds to clinical and social 'need' for surgery, including time waited for treatment and resource allocation.

The Multi-attribute Arthritis Prioritisation Tool (MAPT) was developed by the University of Melbourne using modern clinimetric and psychometric techniques with high level input from relevant clinical and hospital management groups, particularly orthopaedic surgeons. The MAPT has been extensively trialled and provides reliable and reproducible patient assessments that enable evidence-based prioritisation of a wide range of patients requiring JRS.

NSW Health and the ACI Musculo-Skeletal Network will be collaborating to support the establishment and implementation of an orthopaedic service delivery model for JRS that utilises MAPT assessments undertaken by specialised musculo-skeletal coordinators. The musculo-skeletal coordinators will ensure maximal non-medical management of patients following MAPT assessment and appropriate prioritisation of patients for JRS.

There are some immediate options for rationalization of joint arthroplasty surgery centres. These options require refinement through more detailed service planning. However, these initial options should facilitate the development of significant joint arthroplasty centres over the next five to 10 years.

South Eastern Sydney LHN

Sutherland Hospital is being developed as a joint arthroplasty centre and should provide joint replacement services for patients currently going to St. George. Sutherland does not have the capacity to meet the entire operating theatre and bed requirements for South Eastern Sydney. The volume of services currently at POW and its role as a spinal injury centre support the development of arthroplasty services. Emergency orthopaedic services could continue to be undertaken by St. George and POW. This option would provide a better geographical spread of services across the network.

St. Vincent's HN

St. Vincent's Hospital will continue to provide some planned and emergency orthopaedic services but would not be developed and expanded into a major arthroplasty centre being in close proximity to POW and the RPA IRO.

Illawarra LHN

Wollongong Hospital currently has a reasonable load of joint arthroplasty surgery and could be developed to take in the majority of services for the Illawarra region. An alternate option is to develop Shellharbour as the arthroplasty centre given the proximity to Wollongong. This depends on clear decisions in respect of the roles of both of these hospitals for the future given that they should be complementary.

South Western Sydney LHN

Fairfield Hospital currently has a reasonable load of joint arthroplasty surgery and could be developed to take more cases. Bankstown Hospital could also increase its joint arthroplasty surgery load in South Western Sydney and accommodate some patients currently going to Canterbury and Liverpool Hospitals. Current work at Bowral could continue given that it services the local population. Campbelltown capital developments do not need to provide for development as an arthroplasty centre if the above options are developed.

Sydney LHN

IRO is already a joint arthroplasty centre. IRO could also service some of the patients currently going to Canterbury Hospital. With appropriate discharge arrangements to other hospitals and localised rehabilitation in the patient's home, IRO could incorporate work from Concord.

Northern Sydney LHN

RNS and Hornsby Hospitals currently service this population. When the Northern Beaches Hospital is developed, consideration should be given to develop it or Hornsby Hospital as a specialised joint arthroplasty centre which would offload some of the RNS demand. Hornsby Hospital could have capacity to absorb some of this workload in the shorter term.

Central Coast LHN

Gosford mainly services this population. Gosford has a high emergency orthopaedic surgery load and thus it would be reasonable for it to develop both services.

Western Sydney LHN

Currently, work is shared between Westmead, Blacktown and Mt Druitt Hospitals. Either Westmead or Blacktown should be developed as the arthroplasty centre. This would require investment at Westmead given the existing pressures on theatre and bed capacity at Westmead. However this could be specifically factored into Blacktown capital planning.

Nepean Blue Mountains LHN

Nepean Hospital should provide the joint arthroplasty service as well as the emergency load. Hawkesbury Hospital could be required to provide additional elective joint surgery given the projected workload.

Potential Future Joint Arthroplasty Centres

While the hospitals suggested for joint arthroplasty services are appropriate initially, there could be further development over time. An option for these specialised services is that they

be located only in Fairfield, IRO, Sutherland, POW, Nepean, Blacktown, Gosford, RNS and Wollongong Hospitals.

2.2.8. Cancer Services

There is an international trend for cancer services to be concentrated in centres that treat high volumes of patients and offer a full range of cancer services, including surgery, oncology, radiotherapy, and specialised nursing and allied health services. Co-located comprehensive services with experienced staff have the potential to provide improved clinical outcomes for some patients when compared with centres that do not have the same level of experience or cannot provide the same services¹⁰. As cancer surgery services are developing in NSW, there are opportunities to further review these services in line with the development of integrated cancer centres, thereby maximising investment and improving access to the multidisciplinary services for all patients. Further planning for cancer surgery needs to be undertaken in conjunction with the Cancer Institute and the NSW Cancer Plan.

2.2.9. Other Specialty Surgery Centres

There was consideration of a vascular specialist centre model, however given the multiple small centres currently and the lower volumes being undertaken in many of these, it was determined that more detailed planning was required and that this would be undertaken in the future. Some networks have already implemented models that leverage the relationship with interventional radiology services and created primary centres for the emergency and more complex vascular surgery. The critical driver for some consolidation, according to clinicians, will be the ability to invest in hybrid technologies and be better integrated with interventional radiology services.

To ensure there is fairer access to medical and surgical services, the NSW Government has rolled out a number of initiatives to combat obesity in the community. The NSW state-wide Obesity Strategy was launched in August 2008. This has been complimented by the 'Get Healthy Information' and Coaching.

Obesity Management Guidelines were produced by the Agency for Clinical Innovation in 2009-10 and distributed to Area Health Services for implementation.

Bariatric surgery needs to be provided in line with a state plan that articulates both criteria and locations. NSW Health has provided funding to assist the establishment of multidisciplinary obesity clinics and support the commencement or continuance of bariatric surgery. The obesity clinics provide a multi-disciplinary approach to weight management and are located in the Children's Hospital Westmead, Camden Hospital and John Hunter Hospital. An antenatal Obesity Service exists in St George Hospital and a clinic for obese adults is being established in Sutherland Hospital.

2.3. Streaming Emergency and Elective Activity

Planning and managing emergency surgery workload remains a major challenge in major referral and metropolitan hospitals across Sydney and other major cities of Australia. With an expanding ageing population, increasing referral of trauma to major referral hospitals, and rising population demand for improved quality and safety, there are undeniable and compelling drivers for improving the configuration of existing emergency surgery services.

NSW Health has already created the foundation to drive reconfiguration through its June 2009 publication of the Emergency Surgery Guidelines.

Through the Surgery Futures project's extensive consultations with clinical and management stakeholders, in conjunction with critical assessment of empirical evidence provided and supported by the NSW Department of Health, there is strong motivation to continue to progress with emergency surgery service reforms.

Initiatives for dedicated management systems for emergency surgery have been implemented in hospitals and Areas to varying levels of service depth. These include orthopaedic trauma at Liverpool Hospital, the Acute Surgery Program at Prince of Wales Hospital and Surgical Acute Rapid Assessment (SARA) at Westmead. Separation of elective specialist services has also been achieved in some tertiary referral hospitals, including the RPA Institute of Rheumatology and Orthopaedics (IRO) in Camperdown. It is important to consider whether these initiatives could be more widely implemented across other centres.

Experience and available data show that large components of emergency work are predictable and therefore amenable to planning and systematic management.

The emergency surgery guidelines identify the importance of consultant led models of service and the advantages of developing these models of care.

3. Enablers and Barriers

Changes to the surgical system across Greater Sydney needs to be enabled through multiple initiatives, some which are an opportunity which will require deliberate and decisive action at both a policy and an operational level.

3.1. Workforce Enablers

Building a sustainable workforce for the future is one of the most critical challenges facing the health system. Our workforce is ageing with the average age of nurses in NSW at 43.2 years¹¹ which is not dissimilar to many of the surgical specialty groups. Whilst clinicians currently report only small shortages, by 2015 the nursing and medical shortages will be felt right across the system and no less in surgery. This occurs at a time when the demand for clinical placement is at an all time high and this may continue for many years. Surgery requires specialised skills that take time and resources to build and cannot be easily substituted. However, new roles are emerging that bear further consideration and better use of existing workforce can be facilitated by enabling greater workforce portability across the system through credentialing across networks.

Workforce enablers include:

- Introducing simplified and more streamlined credentialing processes so that surgeons are able to be more flexible in how and where they do work. It is felt that the current system of credentialing for surgeons at both the facility and Area level does not enable responsive service delivery and a flexible workforce.

- The need for Greater Sydney to have a point of differentiation to allow it to compete on an international stage for both new fellows and overseas experts. Individual hospitals and LHNs could consider programs such as the Magnet Hospital Program¹³, which has been shown to consistently produce better outcomes for staff and patients, as demonstrated by job satisfaction and quality patient care.
- Innovative workforce models evolving and those that support or enhance the delivery of care should be promoted. Ensuring that systems and processes are in place to support people's changing roles. This includes training in new skills, new models of care (such as HVSS units) cultural change and updating skills on a regular basis.

3.2. Structural Changes

As part of the National Health and Hospitals Reform, NSW has established Local Hospital Networks. Whilst the development of LHNs offers an opportunity to prioritise the organisation of surgical services, they also present a risk of further fragmentation and greater variability in terms of patient access to surgical services.

As part of an integrated system, surgical infrastructure should be planned and evaluated in conjunction with the services it supports. However, this is challenging because of uncertainty about future requirements due to technological, demographic, surgical and policy change. Forward capital and infrastructure programs are ideal opportunities to leverage change for the future. Capital plans that are already developed should be reviewed to ensure that they account for the directions in Surgery Futures. Future capital planning should also be cognisant of the need to ensure strong, safe and sustainable surgical services for the future.

3.3. Funding Model

The current funding model needs a new focus on innovation and it needs refinement to support HVSS, incorporate activity based funding, provide specialty centres and encourage innovation to meet future surgery funding needs. It also limits both the NSW Surgical Program and health services' ability to prioritise investments in surgery. The following options could be considered to overcome this:

- Allocation of a defined "surgical" budget could assist in containing costs and driving improvements favoured to evidence based early intervention.
- A surgery technology capital program allocated to invest in surgical technologies that improve patient outcomes and/or improve efficiency or support innovation models should also be created at NSW Health Department level. This would enable technology drivers for the surgery plan to be implemented and provide a mechanism for addressing these requirements as they arise in the future through state wide targeted investment.
- Commencement of separate funding for surgery with priority given to the new models of care including HVSS could enable rapid uptake and support implementation of the plan. It could also demonstrate long term commitment to reforming the way in which surgery services are delivered and recognise the implementation of innovative strategies to meet demand.

- The transition to LHNS could create an opportunity to enable stronger service level agreements with appropriate incentives and consequences for meeting agreed performance targets. This provides a significant opportunity to specifying the surgery services to be provided and thereby supporting key elements of the surgery futures plan based on the state wide requirements for surgery services.
- A coordinated procurement process for major medical equipment has delivered efficiencies for NSW Health. Reductions in variability in care, such as those that will be derived from the HVSS and specialty centre models, should create greater opportunity to standardise items such as prostheses and intravascular catheters and implantable devices.

3.4. Clinical Practice

Much of the gains that have been made in NSW in regard to surgery have happened as a result of significant investment in clinical redesign and promoting predictable surgery. There is more that can be achieved through greater engagement with clinicians and providing the right environment and supports to enable change.

Clinical practice enablers include:

- New technology has the potential to improve patient outcomes and reduce risk, but also to significantly increase the time and initial cost of procedures. Internationally this is driving a trend to consolidate high cost specialist technology into fewer centres.
- The trend towards minimally invasive surgeries leads to faster recovery times, which means that LOS and overall costs decrease over time. They also allow procedures to be performed outside the operating rooms and hospitals and into other settings such as day clinics and surgeon's rooms.
- Using information communication technology (such as electronic Request for Admission forms, booking systems, surgeon e-portals, telemedicine and telesurgery) to drive better communication and smarter ways to work will support the workforce to drive efficiency and improve patient care. It offers opportunities for more flexible ways to work as well as encouraging workforce innovation.
- Essential resources such as intensive care units, high dependency units, rehabilitation services, diagnostic services and peri-operative services have a highly interdependent relationship with the operating theatre and the configuration of these resources must be taken into account in the delivery of surgical services.
- Models of care continue to change but they can be enabled much more quickly through clinician engagement and the use of networks.
- There needs to be further discussion as to what procedures need an operating room environment and what is more appropriate for a procedure room, ambulatory care or even a doctor's rooms.

4. Implementation Plan

Changes to surgery across Greater Sydney will be achieved through multiple initiatives at both a Departmental and an operational level. Implementation of the Surgery Futures plan will require a commitment at all levels of NSW Health; from clinicians, managers, planners, funders, professional groups, colleges and the community. This implementation plan provides guidance, proposes realistic timeframes, and assigns accountability.

Within 6 months			
Actions Required		Timeframes	Accountability
Rural Surgery Futures	Commence Surgery Futures Plan for Rural NSW	February 2011	NSW Health & SST
Improve ICU Planning	Set up working party including SST & State-wide Services Development Branch to review ICU surgical demand to ensure that it supports the proposed models of surgical care	February 2011	NSW Health, SSDB & SST
Establish Surgical Futures Funding	Allocate funding to enhance surgical delivery and to assist in implementing Surgery Futures models of care.	February 2011	NSW Health
Credentialing	Implement statewide streamlined processes and procedures for credentialing, accreditation and privileging. Recommendations from the Statewide Credentialing Project should assist the process.	By July 2011	NSW Health
Infrastructure Planning	Work with Health Infrastructure and State-wide Services Development Branch to incorporate Surgery Futures recommendations into forward capital planning	By July 2011	NSW Health
Paediatric Surgical networks	Assist Children's LHN to develop plan for increasing capacity in other LHNs for paediatric surgery for appropriate non tertiary procedures currently being transferred to the Childrens' Network hospitals	By July 2011	NSW Health/Children Network/ SST

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Within 6 months			
Actions Required		Timeframes	Accountability
Specialty Schedule	Develop staged schedule for progressive development of surgery futures plan for each specialty	By July 2011	NSW Health & Specialty groups
Eye Centres	State Ophthalmology. plan - establish working group to develop statewide plan for eye surgery including standardised assessment & the establishment of dedicated eye centres	By July 2011	SOS/SST/ NSW Health
Joint Centres	State Joint Plan- establish working group to develop a statewide plan for joint replacement including further development of dedicated joint centres	By July 2011	Orthop Group/ SST/NSW Health
	Develop multidisciplinary models of care for joint replacement surgery from assessment and pre-admission to rehabilitation	By July 2011	Orthop Group/ SST/ACI/ NSW Health
Specialty Centres	Develop statewide clinical service plans for Vascular, Neurosurgery, INR, Cardiothoracic surgery	By July 2011	SST/ACI/SSDB NSW Health
	Work with Cancer Institute to better define surgical cancer services in the context of the state cancer plan (especially gynaecology, colorectal and urology)	By July 2011	Cancer Institute/NSW Health
eRFA & Surgeon Portals	Develop plan for the implementation of eRFA	By July 2011	NSW Health & LHN
Develop HVSS Units	Assess feasibility of implementation of surgeon portals		
	Strengthen existing HVSS development through SLAs	By July 2011	NSW Health & LHN
NUM Training	Commence innovative NUM training program - to support their HVSS management role	By July 2011	NSW Health
Bariatric Surgery	Support the statewide Bariatric plan to ensure that obesity clinic services are further developed and facilitate patient selection for surgery	By July 2011	NSW Health

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Within 12 months

Actions Required		Timeframes	Accountability
Funding Model	Develop a suitable funding model for surgery that incentivises and enhances efficiency, safety and quality	By Aug 2011	NSW Health
Strengthen Clinical Engagement	Develop multidisciplinary models of care for key surgical cohorts eg joints in accordance with Specialty schedule	By Dec 2011	ACI/ SST/NSW Health
Procurement Programs	Establish plan to progress centralised procurement for prosthetics, implantables and intravascular catheters	By Dec 2011	NSW Health
Establish Surgery Technology Program	Identify recurrent funding source to support Surgery Technology program implementation	By Dec 2011	NSW Health
	Establish parameters and processes to support Surgery Technology program	By Dec 2011	NSW Health
	Establish mechanisms to monitor trends in surgery and make recommendations on key investments (and disinvestment) for the future.	By Dec 2011	NSW Health, SST & Surg Specialty groups
Transition to LHNs	Set service level agreements with appropriate targets that prioritise transition to HVSS models	By Feb 2012	NSW Health
New HVSS	Commence staged Implementation of HVSS through targeted incentive funding for capital enhancements	From Dec 2011	NSW Health

March 2012

Actions Required		Timeframe	Accountability
Surgery Futures	Review Surgery Futures implementation activities and status	March 2012	NSW Health/SST

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