

# Brightside Hospital growth analysis

Southern Cross Hospital Ltd

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## Executive Summary

In April 2018, Southern Cross approached EY (Ernst & Young) to develop an analysis report for the extension of the Brightside Hospital site. The purpose of this report is to serve as supplementary information toward Southern Cross' Council application of 'land use consent' and 'plan change consent'.

There has been a significant influx of residents in the Auckland region over the past two decades, and this is projected to continue. The three District Health Boards serving the wider Auckland region - Auckland DHB, Counties Manukau DHB and Waitemata DHB - are not only projected to have the greatest increase in population across New Zealand, but are also to experience the greatest increase in the elderly population. This ageing population will be associated with an increase in health issues, and an increase in demand for surgery services. The volume of elective surgery has been identified as a key issue for demand, particularly for the older population. This significantly outweighs the demand for acute surgery, which the public system largely focuses on. Based on the demographic growth rates, in 20 years' time a projected additional 4,000 elective procedures will be needed each year.

With these projections and the DHBs' financial trend, new government's political focus, and the contrasting trend of publicly-funded surgery discharges vs demand, it is unlikely this will be solely sustainable by the public health sector. The private sector, including Southern Cross, will be expected to respond to these health demands.

The centrally located Southern Cross hospitals in Auckland (Auckland Surgical Centre, Gillies, and Brightside hospitals) have a similar patient catchment span, serving the central-Auckland area as well as serving the wider Auckland population. Around 25% of Southern Cross Hospital patients in Auckland are through public contracts with ACC and DHBs - so it is important that the Group maintains its share of the operative load for the city. The other Southern Cross hospitals in North Harbour and Ormiston are expected to cover growth in the north and south of Auckland respectively, but will not be serving the central and west catchments. Based on the demographic projections, the centrally located Southern Cross hospitals will collectively require 22 theatres and 146 inpatient beds in 20 years to maintain their current share of the surgical load. This would require adding 10 theatres and ~70 inpatient beds.

Brightside, Gillies and Auckland Surgical Centre are currently operating at full-capacity, and Gillies and Auckland Surgical Centre are land-locked, leaving Brightside as the only opportunity for an extension. This might include the need for rezoning to provide certainty of use for the existing hospital. The other alternative is to build a new hospital elsewhere, or relocate the hospital. This is more expensive than the extension option, and no suitable centrally located site has been found. Building in an industrial area to the South, North or West will not adequately serve the catchment using the hospital, and loses the reasons favouring Brightside Hospital's current location, including the value-added to the local area, proximity to tertiary services and intensive care, to health education (medical school), to the healthcare provider industry, and its convenience to patients and clinical specialists.

After assessing the evidence, in our opinion providing for Brightside hospital and its expansion at the current location is the most appropriate way to meet increased demand for healthcare services in the central Auckland area compared to the alternatives considered, and the constraints for other Southern Cross sites.

# 1. Southern Cross Health

Southern Cross Health is a group of independent, health-related businesses, united by a common brand, a not-for-profit philosophy, and the goal of achieving better value health care for New Zealanders. Southern Cross have a strong presence in both the insurer (Society) and provider (Hospitals) sides of the private health market, positioning it well for synergy. The range of its products and services, combined with its not-for-profit focus, size and experience, gives Southern Cross Health a unique and important role in the New Zealand health sector. It is the largest health insurance provider, the only nationwide private hospital provider, and the only private entity that both funds and provides health services. The Southern Cross overall brand purpose is: "Together, we are an indispensable partner in advancing the health and wellbeing of New Zealanders". The current business model is that the Society and Hospitals maintain an arms-length relationship. Below are the three branches of Southern Cross Health:

## 1.1 Southern Cross Health Society

Southern Cross Health Society is New Zealand's largest health insurance business, with more than 850,000 members. It currently holds 62% of the health insurance market, and paid more than \$830m in claims in 2016/17. Claims included more than 240,000 surgical procedures, 420,000 specialist consultations, 750,000 GP visits, and 650,000 prescriptions. Approximately half of the Society's members are individual customers, with the other half being either employees (with employers paying on their behalf) or individuals who are members of group schemes.

## 1.2 Southern Cross Hospitals

Southern Cross Hospitals has the largest network of private surgical hospitals and procedure centres in the country, with 18 wholly owned or joint venture medical facilities, and 20 rehabilitation clinics through TBI. In 2017, 78,000 New Zealanders were treated in a Southern Cross Hospitals facility (compared with 1.1m in a public hospital). Nearly 1,000 surgeons and anaesthetists are credentialed with Hospitals. Approximately 40% of the Hospitals' revenue is from the Society, 25% from ACC, 10% from the public sector, 5% from self-payers, and the remainder from other health insurers.

## 1.3 Southern Cross Trust

Southern Cross Trust is the parent entity of Southern Cross Hospitals and Southern Cross Benefits. It allows the Hospitals to have a tax-friendly status, which lowers the costs of providing health care. Surpluses made from commercial activities are reinvested for the benefit of New Zealanders - primarily through increasing availability of higher quality, lower cost private hospital capacity.

## 2. Demography

New Zealand (NZ) has significant projected population growth and ageing, which will lead to both the public and private healthcare services needing to grow to keep up with the demand. The wider Auckland region has the greatest projected population growth and ageing in NZ. Furthermore, there are concerns with workforce shortages due to the high average age of clinicians in NZ.

### 2.1 Auckland's demand pressures

The Northern Region (Auckland and Northland) is the largest and fastest growing region in NZ. According to the Northern Regional Alliance (NRA) report for 2017-18<sup>1</sup>, the current population of this region is 1.87 million people which is around 39% of the NZ population. It is projected that 58% of NZ's population growth will reside in the Northern Region, which is predicted to particularly impact the metro District Health Boards (DHBs). An influx of 540,000 additional residents is projected in the next 20 years, based on the NRA medium growth forecast. If current models of care continue, the Northern Region will require an additional 2,055 beds, 41 theatres, 1.1m outpatient contacts, and 2.2m GP consultations. These pressures in the Auckland region may crowd out the investments elsewhere in the health sector.

It is projected that Auckland will reach a population of 2 million in less than a decade.<sup>2</sup> The Auckland region covers as north of Warkworth down to Bombay Hills, as defined by Statistics NZ. Below (Figure 1) illustrates that according to the latest data from 2016, Auckland accounted for the greatest population percentage change of 2.8%.

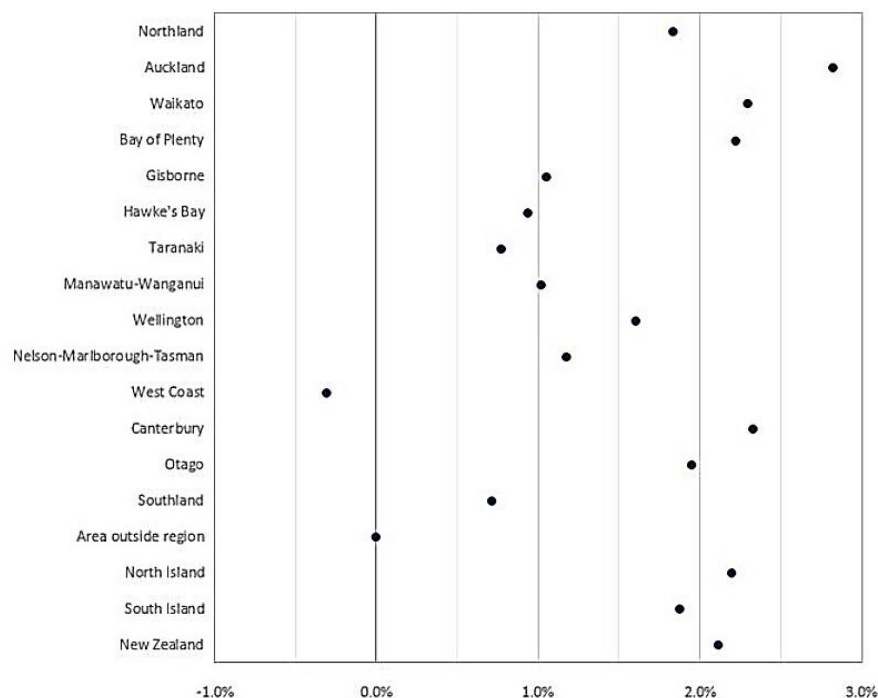


Figure 1: Annual population percentage change in 2016

Source: Statistics NZ, GreaterAuckland.org.nz

<sup>1</sup> As defined in the Northern Region Health Plan 2017/18 report by the Northern Regional Alliance - conjunction between Northland DHB, Waitemata DHB, Auckland DHB and Counties Manukau DHB. Published on Nov 2017.

<sup>2</sup> As noted by GreaterAuckland.org.nz using reports from Statistics NZ for 2016 - <https://www.greatauckland.org.nz/2016/10/31/population-growth-in-2016/>

Although the total growth in 2016 was the highest in the previous 20 years, the highest percentage of growth occurred in 2002 and 2003<sup>3</sup> (Figure 2). Even if Auckland continues to grow at a rate of 2.8% (as in 2016), we should expect large implications on health trends and an increase in demand of health services.

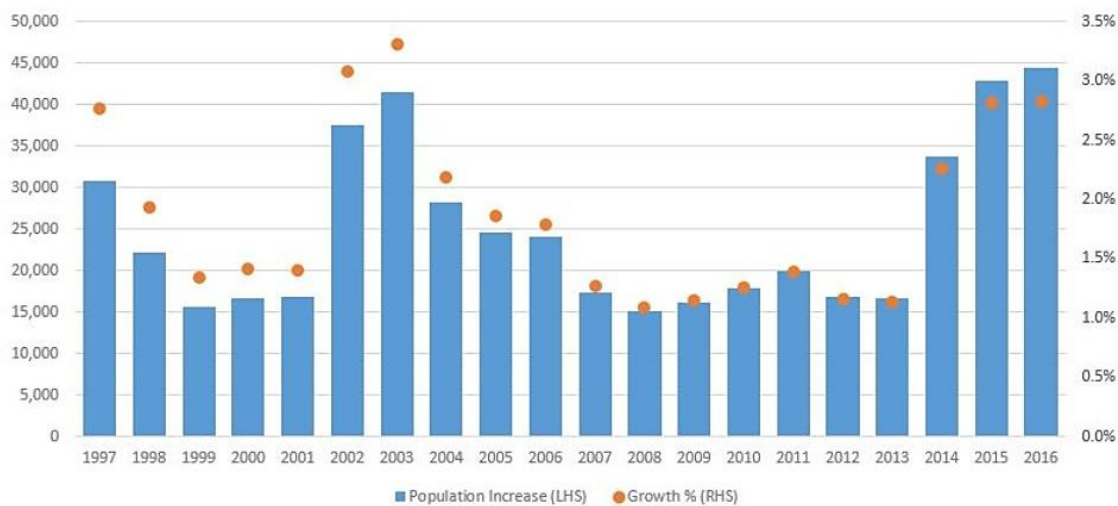


Figure 2: Change in Auckland population, 1997 to 2016  
Source: Statistics NZ, GreaterAuckland.org.nz

Looking at the wider Auckland regions, the Waitemata ward had the greatest population growth out of all the local board areas in 2016<sup>4</sup> (Figure 3), as city infill continues. Auckland DHB will be under pressure to meet the growth in population. There may be a need for private hospitals to increase their market share to meet these demands.

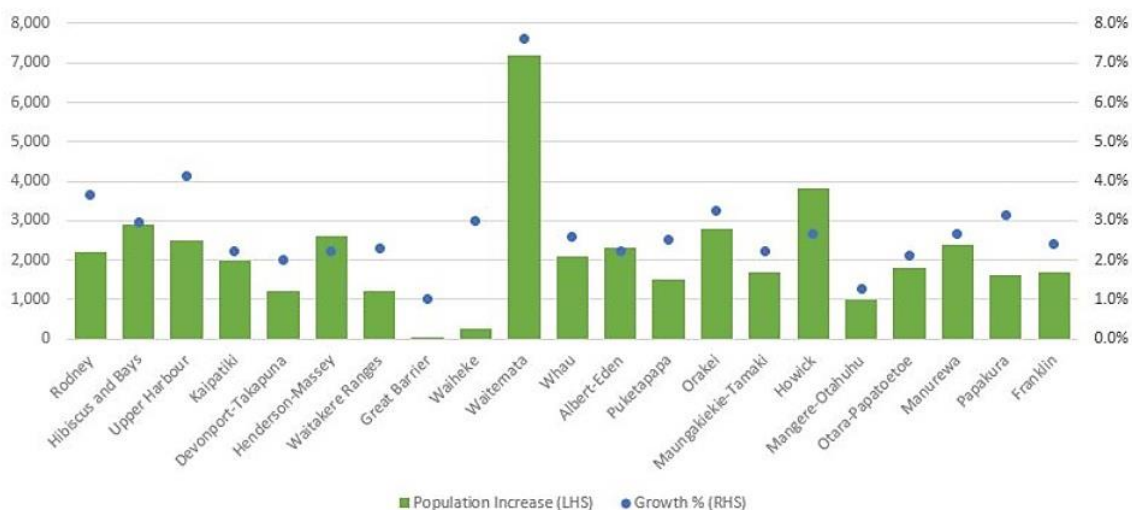
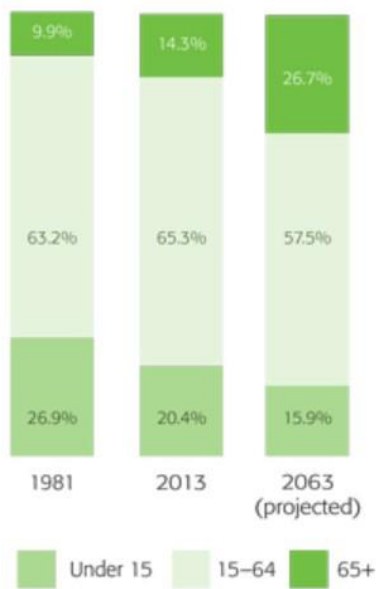


Figure 3: Change in Auckland Local Board population in 2016  
Source: Statistics NZ, GreaterAuckland.org.nz

<sup>3</sup> As noted by GreaterAuckland.org.nz using reports from Statistics NZ for 2016 - <https://www.greeterauckland.org.nz/2016/10/31/population-growth-in-2016/>

<sup>4</sup> As noted by GreaterAuckland.org.nz using reports from Statistics NZ for 2016 - <https://www.greeterauckland.org.nz/2016/10/31/population-growth-in-2016/>



The proportion of residents aged 65 or over are expected to increase NZ-wide (Figure 4). According to the 2013 census, the 65+ population made up 14% of the population and Statistics NZ is projecting it to increase to 27% in 50 years time.<sup>5</sup> Older age groups have a higher need for surgical care compared to the other age groups (outlined in more detail below). An increase in the 65+ age group suggests an increase in the number of surgeries performed in NZ.

Figure 4: Age-demographic change projection based on 2013 census  
Source: Statistics NZ

## 2.2 Population and funding redistribution

By 2036, around 2.2 million people (38% of NZ's population) are expected to live in the metro-Auckland area, while all DHBs are expected to experience significant population ageing.<sup>6</sup> As illustrated in Figure 5, the three DHBs covering the Auckland region are projected to have the greatest percentage growth both for the 75+ population and the total population.

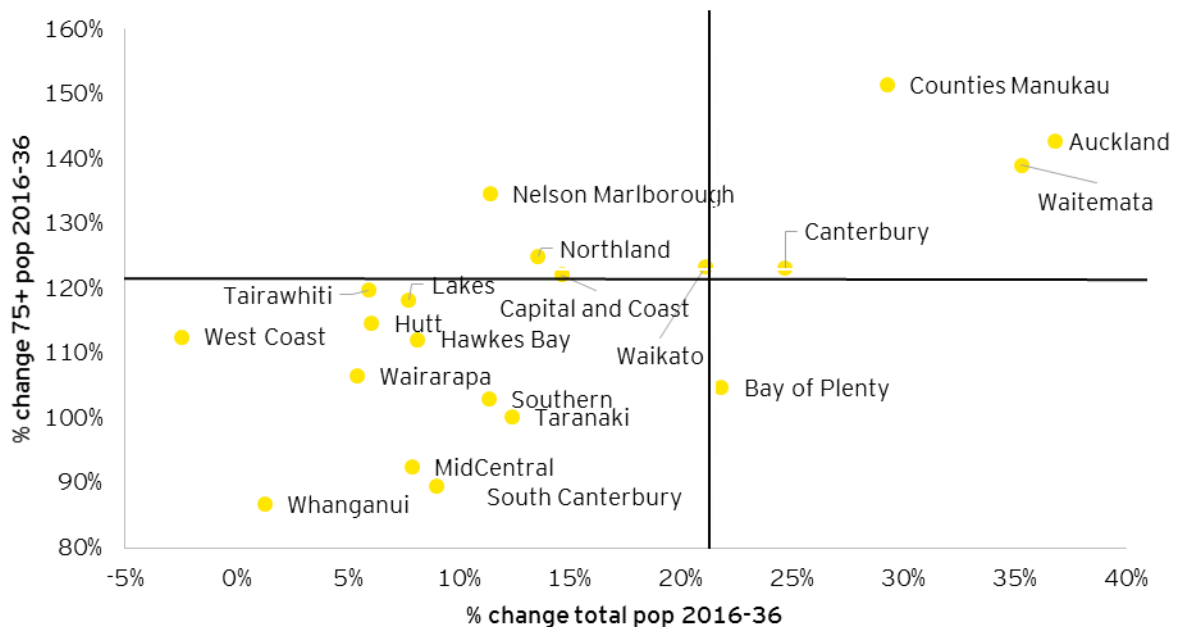


Figure 5: Projected growth for 75+ and total population, 2016-36  
Note: EY analysis-using the 2016 estimates provided to the Ministry of Health by Statistics NZ

<sup>5</sup> As defined in the census report in 2013 by Statistics NZ - <https://www.stats.govt.nz/infographics/people-aged-65-plus-living-in-new-zealand>

<sup>6</sup> As defined in the Northern Region Health Plan 2017/18 report by the Northern Regional Alliance - conjunction between Northland DHB, Waitemata DHB, Auckland DHB and Counties Manukau DHB. Published on Nov 2017.

### 3. Demand for surgery

The NZ public health sector is facing pressure from growing health care demand, especially from the rapid population growth in metro-Auckland. Population health inequities, emerging workforce shortages, and funding constraints pose additional challenges for the system. Discussions on future theatre requirements note the increasing number of procedures being performed in both public and private hospitals in NZ. This section demonstrates the extent of the increased demand for surgery, and in particular elective surgery. Analysis is restricted to publicly-funded surgery, as privately-provided surgery data is not available in this detail. We have no reason to expect that elective surgery rates of increase will be any less than that seen in the public sector.

#### 3.1 Age-specific rates

The increased public sector funding for elective surgery in the past has seen a significant increase in surgery rates (Figure 7). Rates have particularly increased at older ages, with those 85+ having the highest proportionate increase at 7% pa. Growth was fastest in the 2005-2011 period, tailing off in more recent years - this is brought out more clearly in the projections in the following subsection (Sec. 3.3). In particular, it appears that a stable level of procedures per 1000 population has been reached for the age groups up to age 64 thus indicating that the demand for elective surgery will focus on the 65+ population.

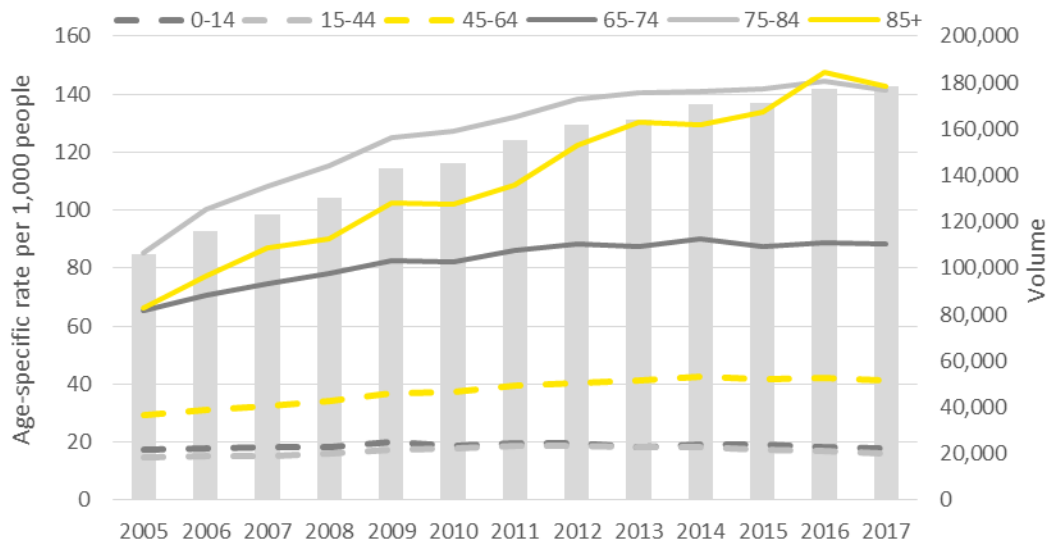


Figure 6: Elective surgery age specific rates (left axis), volumes (right axis), NZ publicly-funded, 2005 to 2017  
Source: EY analysis of NMDS.

The increased elective surgery at older age groups has led to a different age profile between acute and elective surgery in the public setting (Figure 8).

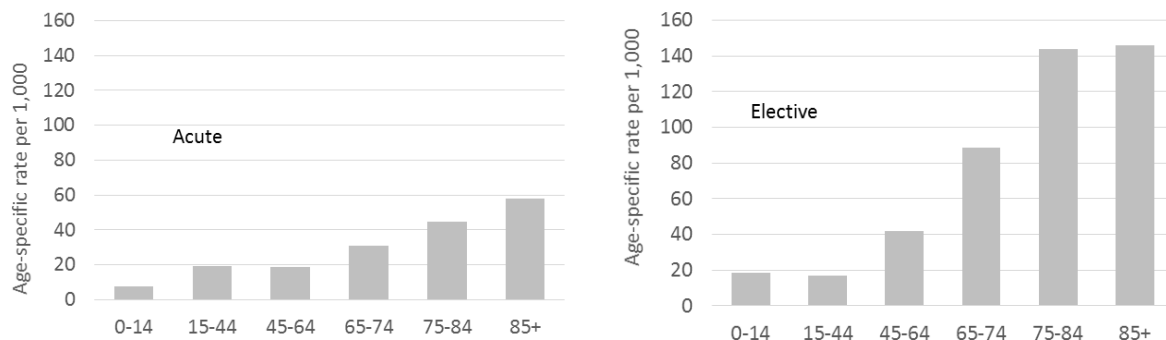


Figure 7: Acute and elective surgery age specific rates, NZ publicly-funded in 2017  
Source: EY analysis of NMDS.



### 3.2 Procedure volume projections

EY has projected publicly-funded procedural volumes based on age-specific profiles using Statistics NZ medium population projections. Given the significant projected increase in numbers in the 65+ population, the increase in elective surgery (if continued at 2017-year age-specific rates) will significantly outweigh acute surgery (Figure 9 & Figure 10 below - note number of procedures are shown, not rates). The acute growth would suggest 30,000 extra procedures over 2017 volumes, or a 31% increase by 2037. The elective growth would suggest 77,000 extra procedures, or a 43% increase by 2037. For both there is a more than doubling of procedures in the 75+ population.

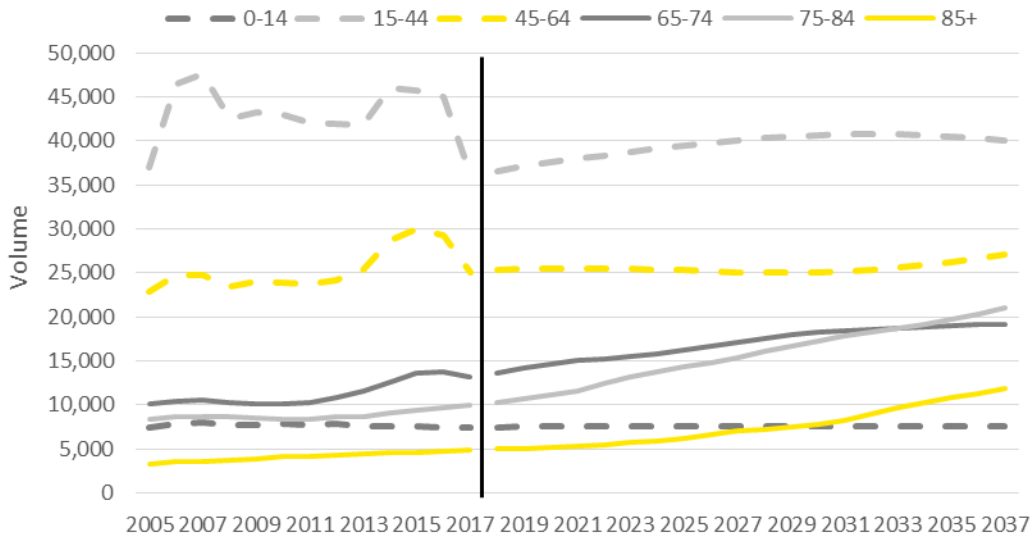


Figure 8: Acute surgery volumes 2005 to 2017 and projected demographically to 2037  
Source: EY analysis of NMDS.

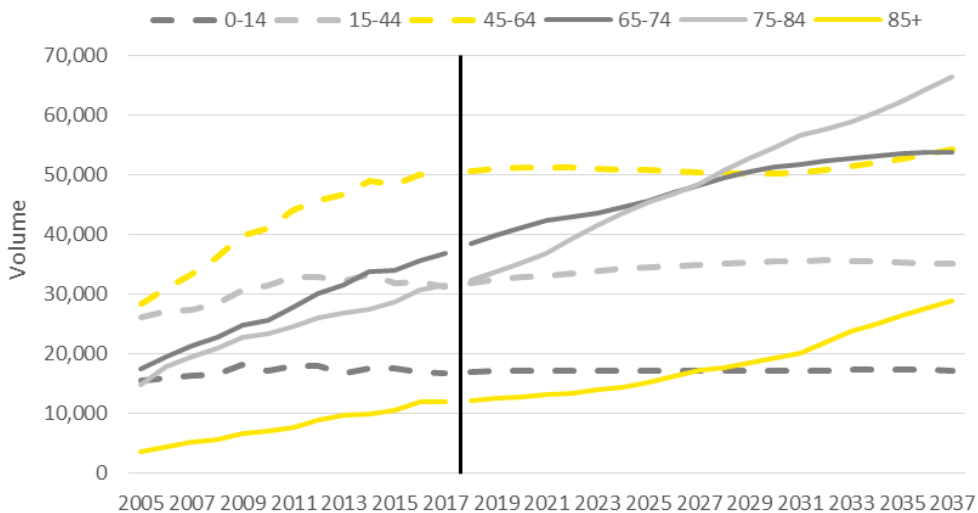


Figure 9: Elective surgery volumes 2005 to 2017 and projected demographically to 2037  
Source: EY analysis of NMDS.

Based on demographic growth alone there is no sign of surgical demand letting up over the next 20 years. Into the 2030's, as NZ's population grows and ages, growth is around 1,400 acute procedures and 4,000 elective procedure per year- of which about 80% is in the 75+ age groups.

### 3.3 A picture of public health sector pressure

DHBs have been running deficit for the past 10 years, with a marked deficit increase over the past 3 years (Figure 6). In the past year, one of the major contributors to this was Counties Manukau DHB to the significant \$120 million deficit, the second largest in the last decade. Sustainability is an ongoing issue for the public health sector. Per capita funding has remained stable in inflation-adjusted terms while demand has increased. DHBs face expenditure pressures in services and coverage (particularly with an ageing population), and increasing workforce costs. DHBs are also experiencing challenges in accessing capital funding for infrastructure, and the impact of delayed asset repairs and maintenance. The new government has indicated that it will increase health funding by an additional \$8 billion investment in health over four years, however it remains more likely than not that the private health sector will need to grow to cover areas that the public health sector cannot prioritise.

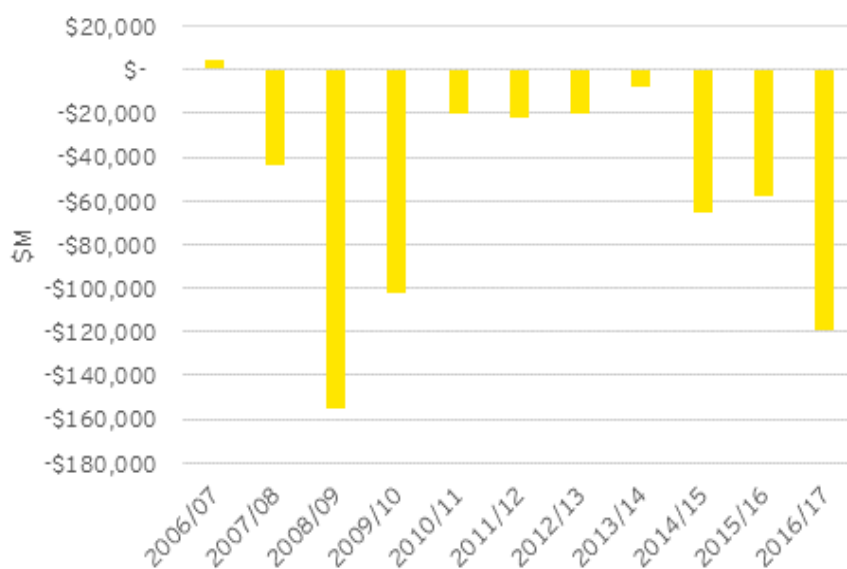


Figure 10: Combined District Health Board deficits, 2006/07 to 2016/17

Source: Ministry of Health DHB monitoring reports

Note: this graph excludes insurance proceedings of \$288M relating to the Canterbury earthquakes of 2010 and 2011.

#### 3.3.1 Policy choices for the Labour-New Zealand First coalition government

The new Labour-New Zealand First coalition government will face the same health sector challenges as the previous government, with the added expectation of faster funding growth after a decade of constraint, and flow-through into salaries and wages. Whether or not the new government will take a strategic, whole-of-system response to demand and supply pressures across a range of dimensions; or proceed with a more incremental, focused approach may impact the expansion of elective surgery facilities for the DHBs around Auckland. Affordability and reducing inequality will be a key consideration, linked with performance of the NZ economy. Therefore, it will be unlikely that there will be focus on elective services for the next 3 years.

#### 3.3.2 Auckland DHB acute and elective surgery volumes

Table 1 below provides the volume of publicly-funded surgery services received by patients in the Auckland DHB region (DHB of domicile).<sup>7</sup> Acute surgery growth appears to be being managed, elective surgery volumes are flat despite the expected increase in demand with population growth.

<sup>7</sup> Information retrieved from: [https://www.health.govt.nz/system/files/documents/publications/table2auckland022\\_16.pdf](https://www.health.govt.nz/system/files/documents/publications/table2auckland022_16.pdf)

This raises doubts about the capacity of Auckland DHB to meet the projected volumes of elective surgery. The DHB performs less elective surgery than acute, and will always need to prioritise acute over elective surgery.

| Table 1: Acute and elective patient discharge volumes, Auckland DHB <sup>8</sup> |               |               |               |               |               |               |
|--|---------------|---------------|---------------|---------------|---------------|---------------|
| Surgical service   | Annual totals |               |               |               |               |               |
|  | Acute         |               |               | Elective      |               |               |
|  | 2015/16       | 2016/17       | Est 2017/18   | 2015/16       | 2016/17       | Est 2017/18   |
| Cardiothoracic   | 199           | 210           | 200           | 139           | 150           | 140           |
| Ear, nose and throat   | 958           | 979           | 970           | 1,971         | 1,991         | 2,040         |
| General surgery  | 6,275         | 6,428         | 6,600         | 2,560         | 2,581         | 2,390         |
| Gynaecology  | 3,034         | 3,090         | 2,860         | 1,434         | 1,449         | 1,310         |
| Neurosurgery   | 311           | 357           | 370           | 161           | 175           | 160           |
| Ophthalmology  | 868           | 804           | 1,060         | 2,088         | 2,138         | 2,210         |
| Orthopaedics   | 4,258         | 4,538         | 4,290         | 1,603         | 1,423         | 1,580         |
| Paediatric surgical  | 457           | 484           | 510           | 285           | 279           | 280           |
| Plastic and burns  | 1,317         | 1,390         | 1,360         | 428           | 428           | 460           |
| Urology  | 896           | 899           | 1,020         | 670           | 736           | 750           |
| Vascular surgery   | 284           | 291           | 260           | 420           | 448           | 390           |
| <b>Total</b>   | <b>18,857</b> | <b>19,470</b> | <b>19,500</b> | <b>11,759</b> | <b>11,798</b> | <b>11,710</b> |

Estimated 2017/18 based on Jul-Mar figures annualised

<sup>8</sup> Table retrieved from: <http://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/hospital-surgical-activity-data-and-stats/explanation-hospital-surgical-activity-data>

## 4. Location

Looking at hospital catchments it is practical to group the centrally located Southern Cross hospitals, since we can assume that they serve a similar patient population and demography. Therefore, the Auckland Surgical Centre, Gillies and Brightside hospitals has been presented as one entity, termed here 'SX Auckland Central'. Given the projected increase in demand of elective surgeries in Auckland over the next 20 years, Southern Cross should be expecting to expand their staff and resources to meet this demand. SX Auckland Central serves the greatest geographic span and volume of elective surgery in the Auckland region, therefore further development within this area is needed.

### 4.1 Span of population served by hospital

The heat-map below (Figure 11 and 12) illustrates the volume of all patients who have had a procedure in the SX Auckland Central hospitals between 2010 and 2017. The volumes shown are based on the distribution of patients resident in the metro-Auckland DHB areas.

SX Auckland Central serves a wider proportion of patients across the Auckland region than the Southern Cross hospitals in North Harbour and Ormiston. The majority of patients served by SX Auckland Central live centrally. Patients in West Auckland are more likely to use the SX Auckland Central hospitals than North Harbour and Ormiston. Ormiston hospital's highest serving patients live between Beachlands and Eastern Beaches, Beachlands-Maraetai and Whitford. North Harbour hospital covers most of the North Shore, particularly within Orewa, Albany and Greenhithe. The span of the 65+ population served by each hospital has a similar profile to the total population, however the SX Auckland Central heat-map has patients particularly concentrated within the Remuera, Orakei North, St Heliers, and the Meadowbank area.

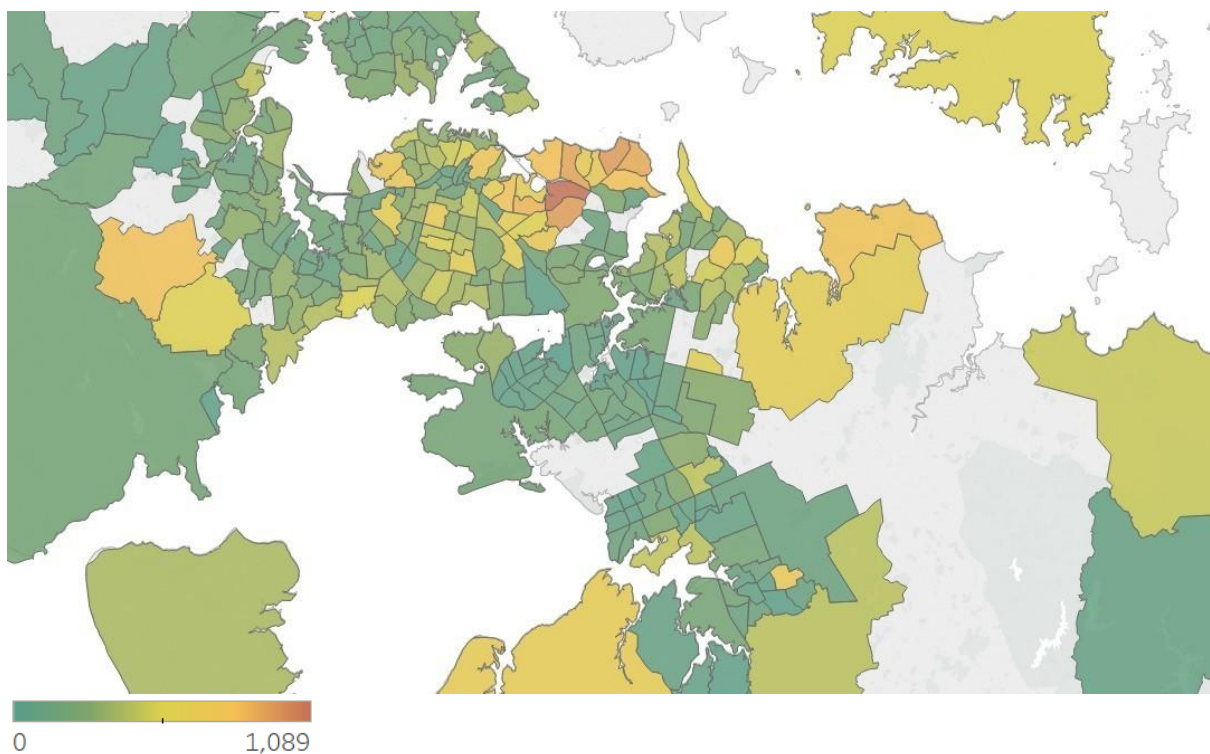


Figure 11: Residence of patients treated by SX Auckland Central 2011-17

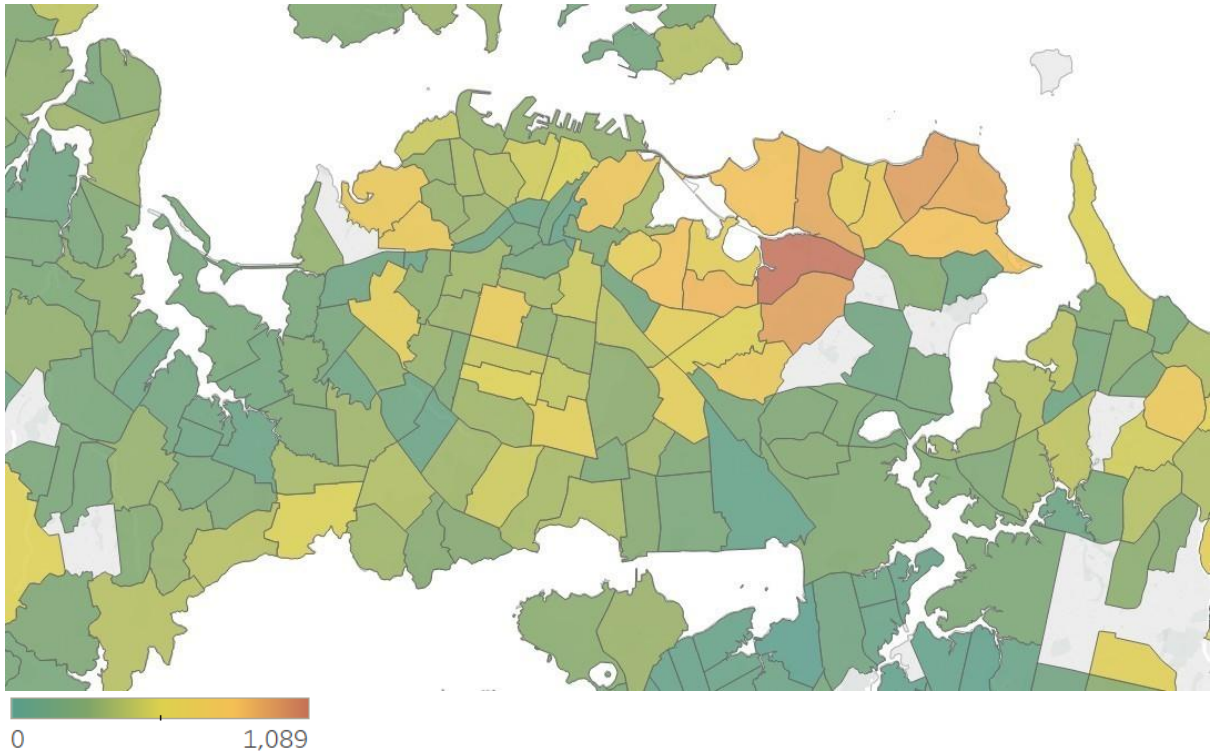


Figure 12: Residence of patients treated by SX Auckland Central 2011-17 (zoomed in)

North Harbour has the highest volume of elective surgeries based in their population, followed by Ormiston (Figure 13). However the three centrally-located hospitals combined are significantly larger than the other two hospitals (Figure 14).

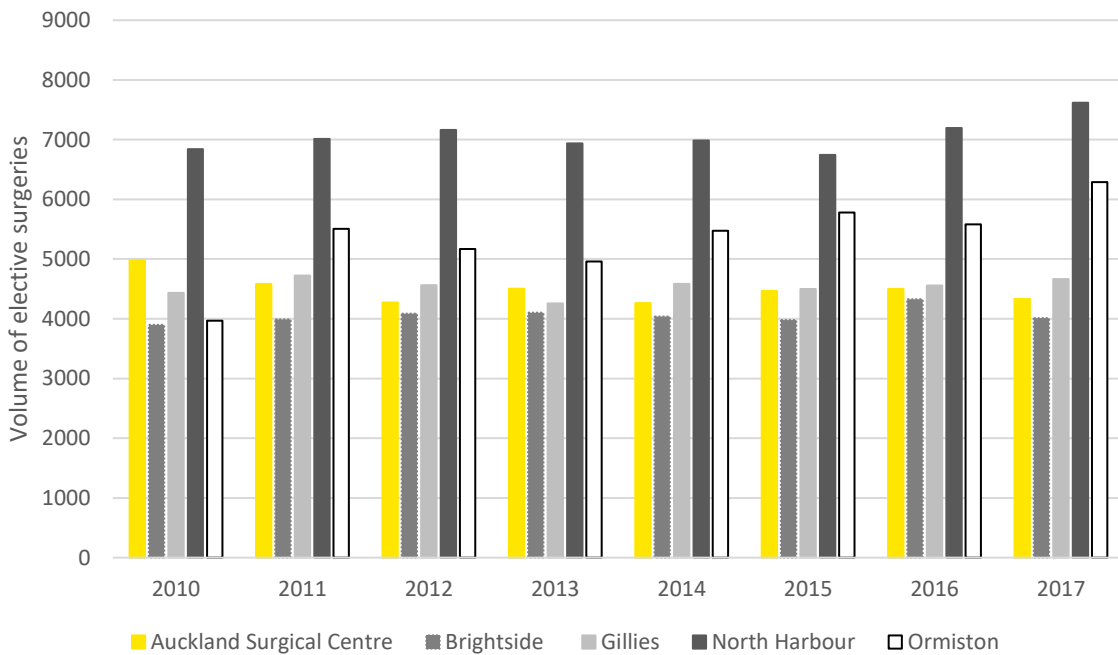


Figure 13: Volume of elective surgeries of Southern Cross hospitals in the Auckland Region

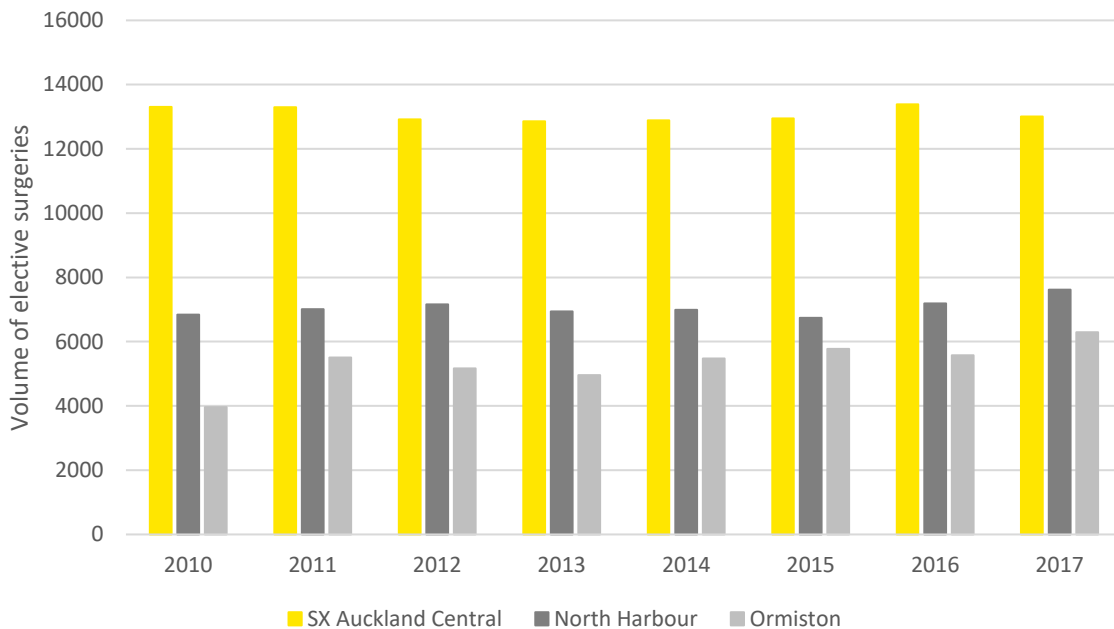


Figure 14: Volume of elective surgeries of SX Auckland Central, North Harbour, and Ormiston

## 4.2 Elective surgery patient projection

A demographic projection using 2017 age-specific rates for the Southern Cross Auckland Central hospitals was conducted using the same methodology as for the public hospital analysis presented in Section 3 above. It provides an estimate of the demand of elective surgery for the current patient load for the SX Auckland Central, and compares with the overall public hospital load. The main drivers are the overall population increase and ageing, particularly those aged 65+. We assume:

- ▶ Southern Cross surgery growth for Counties Manukau DHB residing patients will be largely managed by Ormiston Hospital
- ▶ Growth in the northern areas of Waitemata DHB will be largely managed by North Harbour Hospital
- ▶ Central and Western growth will need to be catered for by the SX Auckland Central hospitals
- ▶ The expected growth over the next 20 years will average at Statistics NZ medium growth projections
- ▶ Market shares remain as they exist in 2017 - in particular the public service maintains its share
- ▶ The rate of surgery will remain at the 2017 age-specific rates. While we anticipate increasing demand for elective surgery over and above these rates, we have not factored that into these projection, retaining a conservative focus.

The ratio of elective surgeries between the SX Auckland Central hospitals and Auckland DHB in 2017 was 1:4 (Figure 15). Based on the age-specific growth rates, and ignoring any capacity constraint, in 10 years SX Auckland Central is likely to have an increase of 42%, and in 20 years

have an increase of 85% from the volume of elective surgeries in 2017. By 2037 the ratio of public to private in central Auckland would be 1:3 based on this age-specific projection.

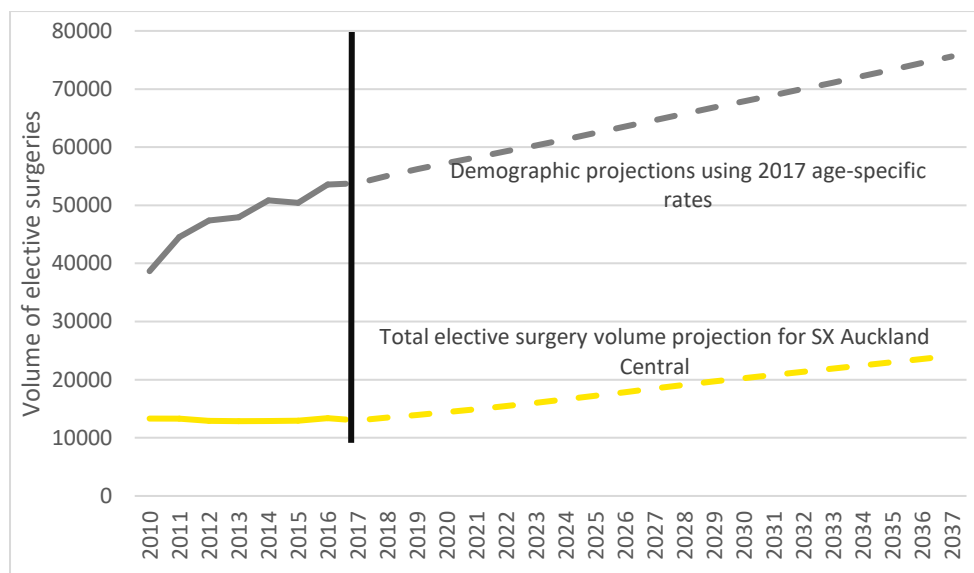


Figure 15: Elective surgery volumes for SX Auckland Central (yellow line) and Auckland DHB based on age-specific projections from 2017 volumes

Note that this projection is conservative in that it does not assume any growth in elective surgery rates<sup>9</sup>, nor in the numbers of Southern Cross patients from North Shore and Manukau treated centrally. In addition the public service may well be unable to grow as fast as the projections indicate will be required. They will be required to prioritise acute surgery, so there is a significant potential for private hospitals to carry public elective surgery volumes in the future.

As per Figure 15, if SX Auckland Central were to meet the demands of elective surgery noted, it will need to increase capacity to manage 18,500 and 24,000 surgeries in 10 years and 20 years time, respectively (Table 2). We estimate that in 20 years, SX Auckland Central will require 22 theatres and 146 inpatient beds (Tables 3 and 4).

| Southern Cross hospitals   | 2017 volumes  | Estimated 2027 | Estimated 2037 |
|----------------------------|---------------|----------------|----------------|
| Brightside                 | 4,009         | 5,700          | 7,400          |
| Auckland Surgical Centre   | 4,335         | 6,200          | 8,000          |
| Gillies                    | 4,666         | 6,600          | 8,600          |
| <b>SX Auckland Central</b> | <b>13,010</b> | <b>18,500</b>  | <b>24,000</b>  |

Based on Statistics NZ medium projections for Central and West Auckland, and the number and age structure of patients being treated in these hospitals in 2017

| Southern Cross hospitals   | Theatres in 2017 | Est theatres 2027 | Est theatres 2037 |
|----------------------------|------------------|-------------------|-------------------|
| Brightside                 | 4                | 6                 | 8                 |
| Auckland Surgical Centre   | 4                | 6                 | 8                 |
| Gillies                    | 4                | 6                 | 8                 |
| <b>SX Auckland Central</b> | <b>12</b>        | <b>17</b>         | <b>22</b>         |

Note: total number of theatres is less than site-specific totals due to rounding

<sup>9</sup> It might be reasonable to expect a widening scope of surgery to become available in future years as technology and surgical techniques improve. For the purposes of this paper we have assumed no net increase in procedures per given age group.

**Table 4: Projection for # of beds for SX Auckland Central**

| Southern Cross hospitals   | inpatient beds in 2017 | Est beds 2027 | Est beds 2037 |
|----------------------------|------------------------|---------------|---------------|
| Brightside                 | 43                     | 61            | 80            |
| Auckland Surgical Centre   | 20                     | 29            | 38            |
| Gillies                    | 16                     | 23            | 30            |
| <b>SX Auckland Central</b> | <b>79</b>              | <b>112</b>    | <b>146</b>    |

Note: total number of beds is slightly less than site-specific totals due to rounding

This suggests that Southern Cross would expect to add a further 5 theatres to manage growth to 2027, and a further 5 before 2037. For inpatients beds 33 extra are needed before 2027, and a further 34 by 2037. While these added theatres and beds might be positioned at any of the three central sites, both Auckland Surgery and Gillies are severely restricted in their expansion options, leaving Brightside as the most obvious option.



## 5. Social and economic impact

As mentioned in Section 3, the total volume of publicly-funded elective surgery in NZ is projected to grow by around 77,000 procedures by 2037, assuming that private surgery providers maintain their current proportions of service - that is that they grow at the same proportionate rate. Maintaining this proportion of surgery volume is likely to both socially and economically impact health services in Auckland.

### 5.1 Social responsibility of Southern Cross

Given the financial trend of the DHBs, the political position of the current government and most importantly, the contrasting trend of publicly-funded surgery discharges vs demand, it is very unlikely that the public health sector alone can support the future requirements. As one of the larger healthcare service providers, EY suggests that Southern Cross has a responsibility to respond to expand their services and resources for the best interest of the community. In addition to indirectly assisting the public by taking some of the elective surgery load that would otherwise have looked to the public system, around 25% of Southern Cross Hospital volumes in Auckland over the past 5 years have been directly publicly-funded - by ACC and by DHBs.

People expect the health system overall to work effectively and that surgeries are timely and available. If the private health sector can deliver the same proportion of surgeries going forward, it avoids increasing the pressure on the public health sector, and any increase the waiting list. It is therefore a collective effort of both the public and private health sector to increase the operating resources, surgical beds and theatres, to maintain an acceptable level of patient surgery thresholds and waiting lists.

### 5.2 Economic responsibility of Southern Cross

It is in Southern Cross' best interest to expand their services, rather than maintain the status quo. In turn, this will provide more jobs available in a centrally located area that is largely accessible to many potential employees. With an increased capacity for elective surgeries, this could suggest that Southern Cross could help minimise the loss of productivity of people who are not able to work without being operated on, and thus also minimise ACC rehabilitation costs. Furthermore, as Southern Cross choose to incrementally expand their resources, they could offer new surgery services, including paediatric surgery, which could associate to less time off work for parents to need to stay home while their child recovers from injury. With SX Auckland Central hospitals located in close proximity to the Newmarket medical precinct, this could contribute to a synergic effect on the output of medical services for the Auckland region.

There would also be a concern that limited private operating space would drive up insurance costs as procedure slots came at a higher premium, impacting health insurance premiums across the board. This would directly impact policy holders economically, or potentially drive some to drop their cover, adding to the public hospital load.

## 6. Focus on Brightside Hospital

Having established that Southern Cross will need to expand and increase their surgery services, we have reviewed the site and other options to manage the demand for elective surgery. Given that Southern Cross has determined that the Auckland Surgical Centre and Gillies Hospital sites have no flexibility for extension within the existing site boundaries, the options for Southern Cross are summarised as:

1. **Proceed with no action.** Assume that the public health sector will adapt and satisfy the demand for elective surgery, whilst Southern Cross maintains their status quo. However, as mentioned in Section 3, the public sector are already under-pressure and will likely require the private sector to share the load of the burden of the patient waiting lists.
2. **Build a new hospital on a new site.** In order to achieve this option Southern Cross would need to consider and address:
  - a. How the existing Brightside Hospital will continue its function and react to a new hospital that will most likely duplicate the activity, management and associated infrastructure, and overlap with the existing catchment
  - b. The inability to capitalise on and extend an existing hospital with the associated additional capital cost
  - c. The assessment of various other sites to ensure that they will not potentially face similar resource management issues and other constraints as the existing Brightside site. A large consideration is that the Unitary Plan has essentially limited the healthcare facility and hospital zone to the major public hospital and healthcare facilities. An industrial location for a new site would be difficult, with potential noise, fumes and truck movements difficult for a hospital. Reverse sensitivity is likely, with neighbouring site owners likely to object to a hospital resource consent application
  - d. Given the identified catchment with reference to Section 4.1, a location within the Epsom area would be most appropriate because it is a site that is highly accessible for surgeons and other staff, proximity to supporting services, ease of access near the motorway for patients, and proximity to Auckland and Greenlane Hospitals. Identifying and securing a location that has the similar advantages of Brightside will be very difficult.
3. **Expand Brightside.** The following sections will assess the suitability of this option, in light of the previous two. This might include the need for rezoning to provide certainty of use for the existing hospital.

### 6.1 Service characteristics

The areas of focus for Brightside Hospital are the following specialties (2017 figures):

1. 50% Orthopaedics (joint surgery) including hip and knee replacements, spinal and shoulder surgery
2. 18% Gynaecology
3. 18% Urology - bladder and prostate surgery, urinary tract investigations and circumcision
4. 10% General surgery - removal of the appendix, breast cancer biopsy and surgery
5. 4% Other- including oral surgery (dental implants and complicated wisdom teeth extraction), plastic reconstruction surgery including carpal tunnel (wrist surgery), septoplasty (nasal passages surgery), and removal of the adenoids in the roof of the mouth.

Utilisation by each speciality varies each month due to the other commitments by the surgeons including holidays and other work responsibilities.

The number of patients in the hospital has remained relatively constant over the last five years, with the hospital being described as operating at full capacity. Demand within the Central Auckland region has exceeding supply for theatre availability - Southern Cross have had more surgeons seeking theatre list time than they have available. Consequently, late night and weekend operations are being offered when surgeons have waiting lists of patients that they need to clear. From the projections below (Figure 16), the volume of orthopaedics will increase to 2820 surgeries in 2037, 816 more surgeries than 2017, with other specialities also growing in similar proportions.

It is reasonable to assume that the expansion of Brightside will not only increase the resources to sustain existing services, but also create new facilities to deliver additional services.

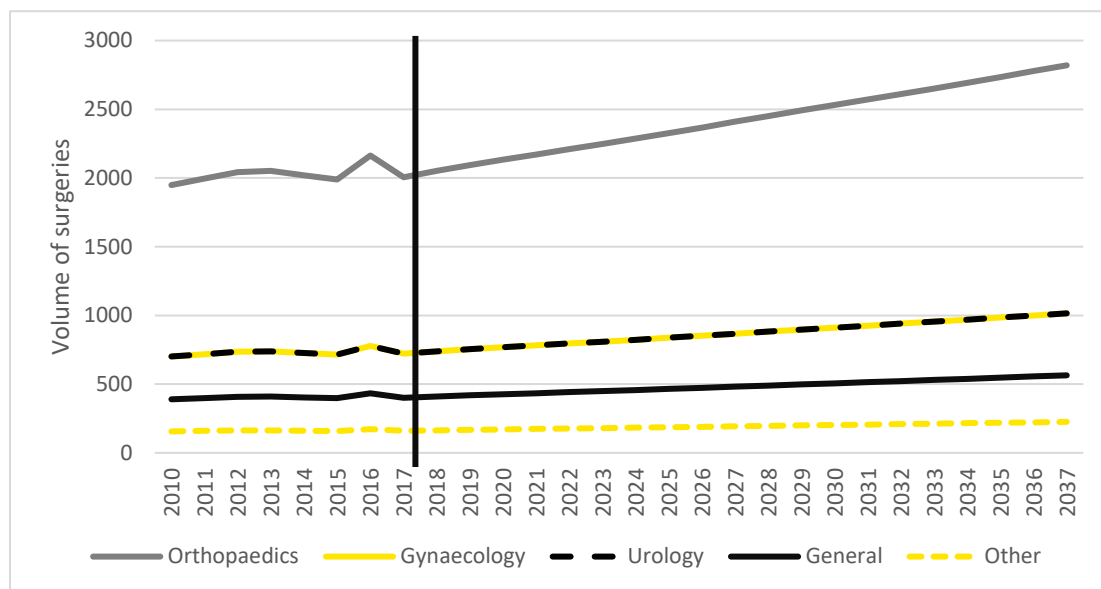


Figure 16: Age-specific projection of Brightside Hospital's specialties based on the 2017 utilisation rates

Brightside Hospital also supports other surgical procedures for causes where demand necessitates and when there are experienced staff and equipment available to be able to facilitate the procedures.

The hospital is an elective surgery facility which means that patients are booked into the hospital on a particular day at a particular time. The hospital does not accept emergency patients - so ambulances with sirens are not anticipated. It should be noted that in a time of a major emergency in Auckland such as an earthquake, urgent care might occur as authorised by the CEO or legislatively mandated by a Government agency with the requisitioning powers to do so e.g. Civil Defence.

With increasing technology being used in theatres the size of operating theatres is needing to increase to cope with this new technology. The technology also needs to be stored when not in use and the appropriately sized storage space is also required. The current theatres at Brightside are not large enough for some of the new technology which is becoming standard in other hospitals. This new technology helps to support better patient safety and care.

## 6.2 Location

### 6.2.1 Proximity to specialists' rooms and residence

There are currently 178 surgeons and anaesthetists that are credentialed to provide medical and surgical services from Brightside Hospital. Specialists choose which hospital they work from based on a number of factors not limited to but including:

- ▶ The quality of the hospital
- ▶ Staffing experience within the hospital
- ▶ Equipment available within the hospital
- ▶ Theatre time available at the hospital
- ▶ Convenience of location in relation to where they live, other places of work and ease of access in terms of travel by car.

Specialists are required to physically visit their patients each day that they are in hospital, so although they may only operate from a facility once a week they do need to visit patients on other days of the week so proximity and convenience is of high importance to them.

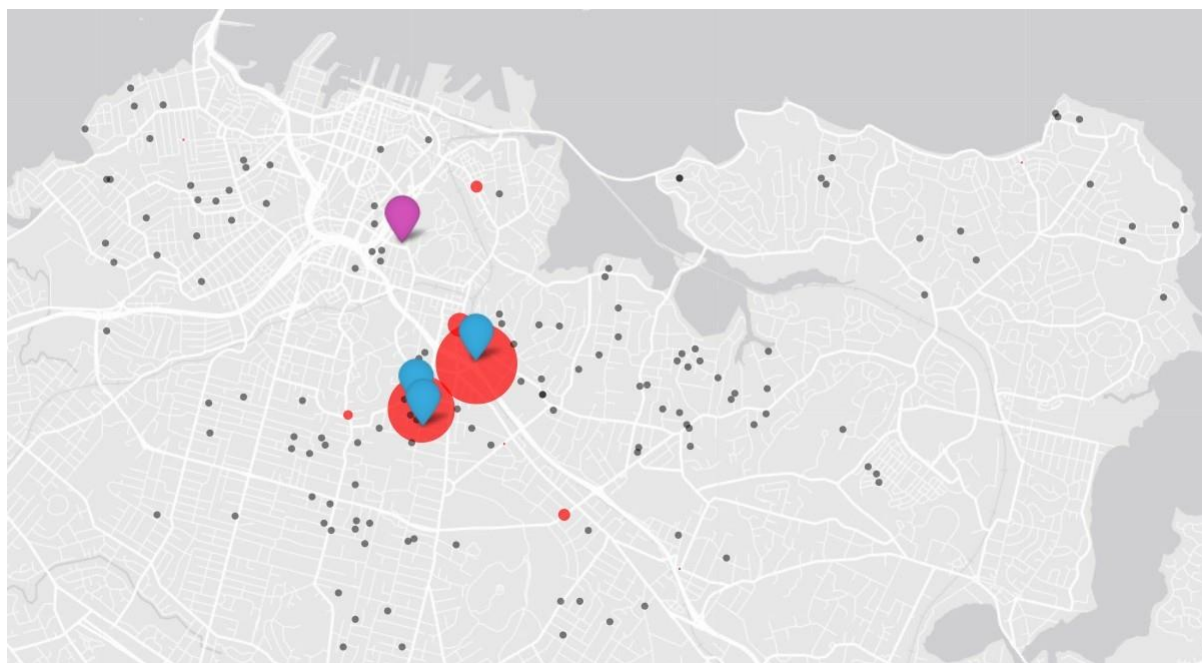


Figure 17: Location of Brightside Hospital specialists' residence, rooms, and Public and SX Central hospitals in Auckland

Note: grey dots indicate specialists' residence locations; red dot surgeon's rooms by area (with the size of the circle indicating the number of rooms); blue markers indicate SX Central hospitals; and the purple marker indicates Auckland City Hospital (Auckland DHB).

On review of the specialists working at Brightside it is apparent that most also live in close proximity in Mt Eden, Newmarket, Epsom, and Remuera, with a further cluster around Grey Lynn/Ponsonby/Herne Bay. In addition, many also work at Auckland DHB with its facilities in Greenlane and Grafton, and most have their consulting rooms based in Epsom and Remuera (28 and 77 rooms, respectively in those areas, clustered in the two larger circles on Figure 16). The three Southern Cross hospitals lie in the 'golden zone' for medical staff, lying between Auckland City Hospital (and the medical school) and Greenlane Hospital campuses, and close to consulting

rooms in Gillies Ave and Remuera Road.<sup>10</sup> Surgeons choose to operate in close proximity to medical support facilities and to minimise travel for patients and staff, which is a significant issue in Auckland.

## 6.2.2 Proximity to tertiary hospital

In terms of patient safety, if transfer for intensive care is required then close proximity to appropriate facilities is important. Auckland Hospital has the largest cardiac and intensive care services in the country, and is less than 2.5 km away from Brightside.

## 6.2.3 Proximity to community facilities and services

As a healthcare provider, Brightside Hospital serves as a beneficial resource for the surrounding communities. Epsom and Remuera form a strong central hub of speciality medical facilities, and the expansion of Brightside's services and facilities should accelerate the 'positive sum competition'<sup>11</sup> not only for the local area, but for the Auckland region, given that the location serves a wide patient population (see Sec. 4.1.). It is no coincidence that various healthcare services surround this region. Brightside Hospital resides in an area that has close proximity to public transport (trains and busses), routes to the Northern and Southern motorway, and education facilities such as the Grafton Campus (medical school), University of Auckland.

If relocation is the preferred option, Southern Cross will need to consider the factors of convenience of travel and accessibility for patients, specialists, and community services. Given that the site of Brightside satisfies these factors suggests the appropriateness of this option.

## 6.3 Hospital structure

It is reasonable to assume that the expansion of Brightside will also suggest greater efficiency of Southern Cross' service operating in the Auckland region. This can be based on the assumption that the modernisation, improvement and expansion of services for an existing site is a better use of Southern Cross' resources compared to the investment of a new site and its associated risks. Furthermore, the proposal for expansion will likely be more financially sensible for both short- and long-term since:

- ▶ It will be more cost-effective to incrementally build Brightside than building a new hospital;
- ▶ the operating costs and support services costs for Southern Cross will be lower than having another hospital in their portfolio, including food and laundry management, medical supplies, inventory, hospital infrastructure management and site management.

Such efficiency considerations are naturally of interest to Southern Cross as a non-profit provider as it enable it to provide more services for a given premium level. For Southern Cross members and the public more generally being able to keep premium level increases down assists in keeping using private surgical providers, reducing pressure on the public system.

Brightside Hospital has around 125 to 130 staff. Staff work differing hours dependent on their profession. Although staff are rostered for particular times the nature of the job working in healthcare means that at times staff will be required to stay longer or start earlier to meet demand and /or to ensure safe patient care. The hospital staff also includes orderlies and administrative

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<sup>10</sup> Other private hospitals such as Mercy and Ascot also fall within this 'golden zone'

<sup>11</sup> 'Positive sum competition' is based on understanding that competition drives up value for customers over time as quality improves and costs decrease. This article reinforces that health care also has these characteristics. Information retrieved from: Porter ME, Teisberg EO. Redefining competition in health care. Harvard business review. 2004 Jun 1:64-77.

staff. Surgeons are responsible for allocating theatre time for patients depending on the case for operation. Below are the usual hours taken by staff members:

- ▶ **Ward nurse hours:** 6.30am-3pm. Involves a half hour handover time between 2.30pm-11pm. Following shift from 10:30pm-7am.
- ▶ **Theatre nurse hours:** 7.30am-6pm - subject to demand of patients for operations.
- ▶ **Anaesthetic technicians:** 7am-5:30pm - subject to demand of patients for operations.
- ▶ **Sterile Services Department staff:** 11.15am-7.30pm.
- ▶ **Surgeons and anaesthetists:** 7:30am-6pm - may also have visitation outside the required time for patient follow-up.

These times are not expected to change with the hospital extension.

## 6.4 Conclusion

We suggest that Southern Cross has 3 options in the face of increasing surgery demand. These are summarised in the table below, along with their downsides and benefits as assessed by EY.

Having reviewed these options, EY believes that the proposed expansion of Brightside would be the most viable and appropriate response from Southern Cross in order to address the analysed demand for elective surgery in the Auckland region.

| Criteria   | 1. Do nothing   | 2. Build on new site  | 3. Expand Brightside  |
|--|---|---|---|
| Meeting surgical growth demand for Southern Cross members                                    | No  | Yes, but would be dependent on finding a location that suitably services the catchment  | Yes   |
| Meeting surgical growth demand more generally  | No. If Southern Cross does not meet its need for its own members the load will perform fall on for-profit providers (who would need to do their own expansion) or the public system | Yes, as above   | Yes. With ~25% of Southern Cross procedures through public contracts with ACC and DHBs it is important that the Group maintains its share of the operative load for the city  |
| Serving current catchment of patients - West and Central Auckland. Good access for patients. | No. Without growing Southern Cross surgical capacity centrally 'overflow' patients will need to seek service elsewhere  | Unlikely. The current site is close to motorway links and other health facilities. It is central to the Auckland Central catchment, and is a natural flow from West Auckland. Readily available industrial land tends to be in South Auckland, North Auckland or West Auckland, all of which create mismatches between catchment and location | Yes - the most straightforward solution. It is in catchment, close to motorway links and other health facilities. Could other Southern Cross Hospitals be expanded instead? Both the Gillies and Auckland Surgical Centre (ASC) sites are as well located as Brightside so would be suitable from that angle. Unfortunately both are land-locked, with ASC on leased land. If Southern Cross were to buy land adjacent to Gillies it would face the same land use change issues as seen here. Rezoning would provide certainty of use for the existing hospital as well as for new facilities |
| Location allows easy access for key professionals - surgeons and anaesthetists               | N/A   | Seems unlikely as above   | Yes. The current hospital lies in a 'golden triangle' between Auckland and Greenlane Hospital sites, other health facilities such as specialist rooms, and close to the surgeon's personal addresses allowing easy call-back after hours  |

|  |     |  |  |
|--|-----|--|--|
| Easy access to public hospitals - patient transfer in emergencies, surgeons/anaesthetists who work across public and private | N/A | Seems unlikely as above  | As above - close access to tertiary services and intensive care, and staff's potential alternate workplaces  |
| Proximity to other health facilities   | n/a | Seems unlikely as above  | A strong health presence in the surrounding area, including specialist rooms, allied health practitioners, public hospitals including the largest tertiary hospital in New Zealand, and the largest medical school and health education campus   |
| Financial cost to build  | n/a | More expensive than extending existing site  | Able to share resources with existing buildings, avoiding repetition of plant, utilities access etc  |
| Operating cost/efficiency  | n/a | More expensive to run two sites than simply extending existing site  | Volume efficiencies, workforce management, food and laundry, medical supplies, inventory, hospital infrastructure and site management, means the larger hospital will be able to run at a cheaper cost than the equivalent functions spread over 2 smaller sites. This will assist to avoid premium increases for this non-profit provider |
| Workforce  | n/a | Duplication of workforce would occur if a second site was developed. Depending on location could be less attractive for staff, making recruitment and retention more difficult | Maximisation of existing workforce and scarce skillsets with more effective rostering and job sizing. Staff recruitment and retention is generally easier with newer facilities with a larger staff complement allowing more specialisation and a greater range of equipment, with higher employment as a result                           |



|  |           |   |  |
|--|-----------|---|--|
| Technology upgrading, hospital quality | No        | Yes - larger theatres, improved clean air technology, able to accommodate new equipment     | Yes - larger theatres, improved clean air technology, able to accommodate new equipment  |
| Range of services provided             | No change | Potential to offer more and varied services, but may be limited by the size of the facility | Having a larger facility should lead to more specialisation, with a wider range of equipment and services able to be provided, better serving the public and more likely to be able to alleviate demand on public services |

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