Canterbury
District Health Board
Te Poari Hauora ō Waitaha

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8 September 2020

9(2)(a) [redacted]

[redacted]

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RE Official information request CDHB 10385

I refer to your email dated 10 August 2020 requesting the following information under the Official Information Act from Canterbury DHB. Specifically:

1. **Copies of the Ernst Young Reports on the Canterbury District Health Board.**

Please refer to **Appendix 1** (attached) for the Ernst Young Report June 2019.

The Ernst Young review/report dated 30 June 2020 remains subject to ongoing review/verification/discussions between Canterbury DHB and Ernst Young. It also forms the basis of ongoing discussions between Canterbury DHB, the Ministry of Health and the Minister of Health (including relating to the 2020/21 Annual Plan yet to be finalised and approved by the Minister).

We are therefore declining your request pursuant to sections 9(2)(i) and (j) of the Official Information Act i.e. *(i) … enable a Minister of the Crown or any department or organisation holding the information to carry out, without prejudice or disadvantage, commercial activities; or*
(j) …..enable a Minister of the Crown or any department or organisation holding the information to carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations)

You may, under section 28(3) of the Official Information Act, seek a review of our decision to withhold information by the Ombudsman. Information about how to make a complaint is available at www.ombudsman.parliament.nz; or Freephone 0800 802 602.

Please note that this response, or an edited version of this response, may be published on the Canterbury DHB website after your receipt of this response.

Yours sincerely

R LaSalle

Ralph La Salle
Acting Executive Director
Planning, Funding & Decision Support

APPENDIX 1

Canterbury District Health Board

Sustainability Plan and Operational Review

Steering Group Meeting 26 June 2019

Commercial in confidence

Building a better working world

Executive summary

The Ministry of Health and CDHB engaged EY to:

1. Assist with the current state analysis of the DHB's financial and operating performance
2. Support the development of a response to the DHB's financial position keeping in mind future potential injections of capital for the further redevelopment of Christchurch Hospital (noting the impacts this would have on the DHB's forecast operating position)
3. Document observations and commentary on the DHB's systems and management controls. In this regard EY has not conducted a formal audit of any risk and control systems but has focussed on the management and deployment of resources and inputs in light of a material deficit forecast for both 18/19 and 19/20.

Analysis on CDHB's performance has been produced to inform subsequent operational planning and work programme development to mitigate the 19/20 forecast deficit. The analysis explores how CDHB benchmarks to its peers with proxies for productivity / efficiency insofar as it is identifiable in current data. This is explored briefly in this report, with detailed analysis available as a separate document.

The main focus of this report then is to explore what is needed to deliver a plan for 19/20 given the material differences between the CDHB and the MOH with regard to what an acceptable 19/20 forecast deficit is.

Context

- The CDHB has maintained and delivered a high performing health system in trying circumstances following the 2010 and 2011 Canterbury Earthquakes. With regard to hospitalisations, CDHB performs well benchmarked to peers as a large, urban, tertiary DHB, with particularly low acute bed days per capita, and an evidenced approach to the containment of acute demand growth.
- The DHB's financial performance has markedly deteriorated since 2015/16 which the CDHB note as 1) increasing capital charge and depreciation due to changes in the underlying asset base following the earthquake and increased equity on the DHB's balance sheet 2) increasing input costs with marked increases in personnel costs over the past five years 3) a portfolio of transition costs that face the DHB as a result of the earthquakes and delays in infrastructure required to maintain core service delivery 4) ongoing demand pressures as reflected by demographic and population trends that have exceeded earlier forecasts post the earthquakes.
- We also note that since 15/16 it appears the CDHB's share of PBF revenue nationally has declined. This may have had impacts on the CDHBs financial performance but this is not within the remit of this report. Nor can EY provide any levers to manage this particular issue that would impact the forecast deficit over 19/20.
- Canterbury DHB is projecting a deficit in 2019/20 of $198M a material increase from the forecast deficit for 2018/19 of $103.4M. A significant component of the 19/20 deficit is $132M of depreciation and capital charge. There are material differences between what the Ministry of Health considers an acceptable deficit track for 19/20 and what the CDHB considers achievable. EY's observations and recommendations then focus on how the 19/20 deficit might be managed.

Key observations/findings

We do not think it achievable in the immediate term for the CDHB to reduce a $198M deficit to breakeven. However we have considered the options available for managing the deficit back to breakeven exclusive of Interest, Depreciation and Capital Charge (IDCC) ie managing a deficit of $67M for 19/20.

This report considers the drivers of this deficit and presents savings scenarios to manage the short term position the CDHB find itself in. We note the following points:

- Key drivers of deficit have been examined by EY encompassing four key themes of: Transition costs (earthquake and infrastructure related); FTE growth against forecast; Sickness and Annual Leave and cost impacts thereof and Resource Management (notably forecasting/deployment of resource relative to demand)
- In undertaking our system and operating performance analysis we consider that further investigation of operational resourcing with a particular focus on the deployment and recruitment of FTE is necessary.

Executive summary cont'd

- We have considered the robustness of underlying management and control systems and suggest there are improvements that can be made. Most critically given comparisons of raw FTE numbers with other DHBs; benchmarking of the nurse workforce at the DHB and the current FTE levels, we consider that there is scope to better constrain historical salary and cost growth. In this regard performance to budget has not been achieved over the past two years.
- When looking at nursing resourcing against forecast we observe an obvious gap between resource and demand. Despite the CDHB efforts to reduce the variability with a target of 90% accuracy, EY note an opportunity to better align resourcing to service demands This would require further exploration of ward specific demand analysis and roster establishment.
- This not only refers to attaining a better understanding of the control environment around FTE related matters such as sick and annual leave but needs to consider demand and resourcing forecast against occupancy.
- In the last two years FTE growth has been higher than budgeted and cost growth has steadily increased over a number of years. EY also found it challenging to obtain information on sick leave (CDHB is currently extracting sick leave data for internal analysis), and there was a lack of clarity around recruitment policies going forward despite the current fiscal situation.
- When taking a wider perspective and not considering the DHB's immediate financial situation, on a per case-weight basis, medical FTE (provider and outsourced) does benchmark well to peers. When using similar benchmarks for nursing benchmarks slightly lower to peers. This is most likely driven by a higher relative FTE count and/or lower measurable activity outputs. The benchmarks are not significantly different to peers but a heightened exposure to changes in salary and conditions will impact CDHB due to the relatively high head count.
- We note that personnel costs were disproportionately affected as stated above (and compared to other DHBs) between FY17 and FY18 as a result of MECA changes.
- It is important to note that Canterbury DHB more generally tends to run an increased nursing personnel base, with a smaller complement of medical personnel in comparison to peer DHBs. It is also important to note the recent Nursing MECA (June 2018) increases as well as the considerable financial impact of changes to the RDA agreements in Schedule 10 (CDHB is now Schedule 10 compliant after the recruitment of a further 32 FTE). This is in addition to the impact of SMO Section 13.4b and the National Junior Doctor strikes.
- Overall this would suggest that Canterbury DHB is particularly exposed to nursing MECA changes, as well as operating costs associated with personnel entitlements and recruitment that come with a higher head count of staff.

CDHB financial pressures, forecast deficit, input costs and the plan for 2019/20:

CDHB is experiencing significant challenges in managing its forecast 19/20 deficit. As stated earlier, the forecast for the annual plan for 19/20 is a $198M deficit of which approximately $132M is depreciation and capital charge. We also note:

- All of the DHB's cost lines for 19/20 are exceeding revenue growth with the most significant being personnel cost growth.
- It is acknowledged that the DHB has incurred transitional costs as a result of sub-optimal operating conditions (e.g. incomplete infrastructure/damaged infrastructure). EY has worked with the CDHB to quantify these costs and how they phase and reduce overtime.
- Sick leave is now a significant issue with incidence of unplanned leave increasing 18.5% over the last 4 years from 10.96 days per year, to 12.99 days per year (on average per employee), with total payments in FY18 totaling $21M. CDHB note that the adjusted impact cost (using the industry standard factor of 3.5-4) could put the impact at ~$80M. (From CDHB sick leave analysis ' the story of absence'
- CDHB has an increasing annual leave liability of ~8% from FY17 to FY18 (total liability as at FY18 $81M).

Executive summary cont'd

Although it can be argued there is little the DHB can do to manage capital driven costs in the short run it is not unreasonable to understand how the DHB might achieve a breakeven position before capital driven costs.

We note that the CDHB has identified many of these issues in its internal risk and assurance work programme. However progress has not been made on a number of these issues and needs to be prioritised.

Therefore a range of packages have been designed with the goal of achieving a break-even position before IDCC. For the purposes of this pack two scenarios are included. They are described at a high level below. Though some elements are agreed with CDHB the bulk of the gains required to achieve a breakeven before IDCC have not been agreed with by CDHB.

High level features of forecast scenarios:

In the scenario intended to achieve a breakeven before IDCC we note the following key features:

- Surplus before IDCC of $0M 19/20. Increases to surplus of $39m before IDCC in 20/21 under the maximum package
- Transition cost package defined with a decreasing profile from $31M in 20/21 to $9M in 21/22
- The scenario can achieve breakeven before IDCC in 19/20 due to forward loading of savings, a range of funder arm and corporate efficiency proposals and recruitment phasing/redeployment from turnover which may have operational impacts if not well managed
- Forecasts are based on 3.5% cost growth and 4% revenue increases – changes to these assumptions are material to future operating position
- Overall total deficits remain high as costs continue to grow over time and IDCC remains very high ($141M in FY21/22), however deficit before IDCC is eliminated with increasing surplus before IDCC reaching $50M by FY 21/22.

A second scenario is provided for comparisons sake. This scenario does not achieve breakeven before IDCC though it comes closer to breakeven before IDCC by 21/22 than current projections.

EY notes in both scenarios initiatives relating to proposed model of care changes relating to Ashburton and regional facilities as provided by the CDHB – though we have included these initiatives in the overall forecasts we consider there are better opportunities to manage the deficit given the significant executive time and considerable public consultation needed to drive these projects for marginal gains.

Summarized insights from CDHB reporting and data analysis (provided by the CDHB)

Population

- Perceived that the earthquakes have changed the population trajectory. However Canterbury experienced a 9.3% population growth FY13/14 – 17/18 in comparison to the rest of NZ at 8.1%. Population growth is higher than expected pre-earthquakes
- "Canterbury 2019 – not Canterbury 2009," highlights a 31% growth in both Maori and Pacifica population since 2009 with a 64 % increase in the Asian demographic. Additionally, since 2009, there has been an 8% non-Maori and 23% Maori increase in under 15s.
- "CDHB's population based funding was not adjusted to reflect the changed patterns in health services consumption arising from the need to treat a population dealing with the psychosocial impacts of a natural disaster" Garry Wilson Consulting, The Way Forward, April 2018.

Demands on Service

- MH services report a 46% increase in demand in acute adults and 98% in child and youth
- Cancer – CDHB population use 17% of the national in-hospital cancer activity and 12.2 % of cancer registrations

Summarized insights from CDHB reporting and data analysis (provided by the CDHB)

Deprivation

- On deprivation, CDHB data suggests that proportionately Canterbury people have the median proportion of community services cards as comparator DHBs, 10% more than Auckland, Waitemata and Capital and Coast DHBs.
- CDHB children (0-14) are the second most likely to hold a CSC in the country. The median household income is 25% lower than Capital Coast DHB and 2% higher than national average ($90,800).
- NZDep has failed to capture the key elements of deprivation in a post-earthquake, forced migration environment

Sick leave and Mental Health

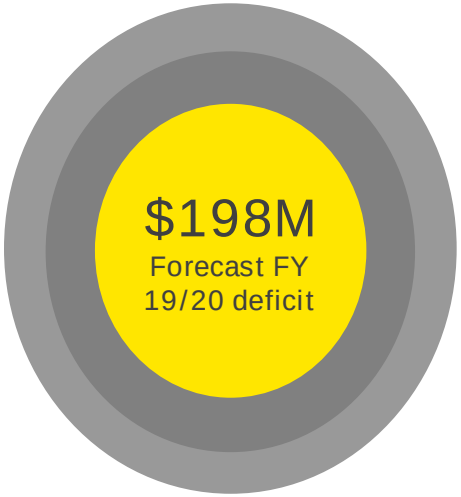
- CDHB has the highest sick leave rates nationally. Limited research on compounding impact of consecutive serious events on the same or similar population.
- SF 10 scores in a recent wellbeing study on Canterbury population aligned to the theory of heroic / honeymoon / disillusionment / reconstruction model of response to a disaster. However rates of mental health remains an on-going area of concern in the region.

1

The size of the deficit and the management challenge

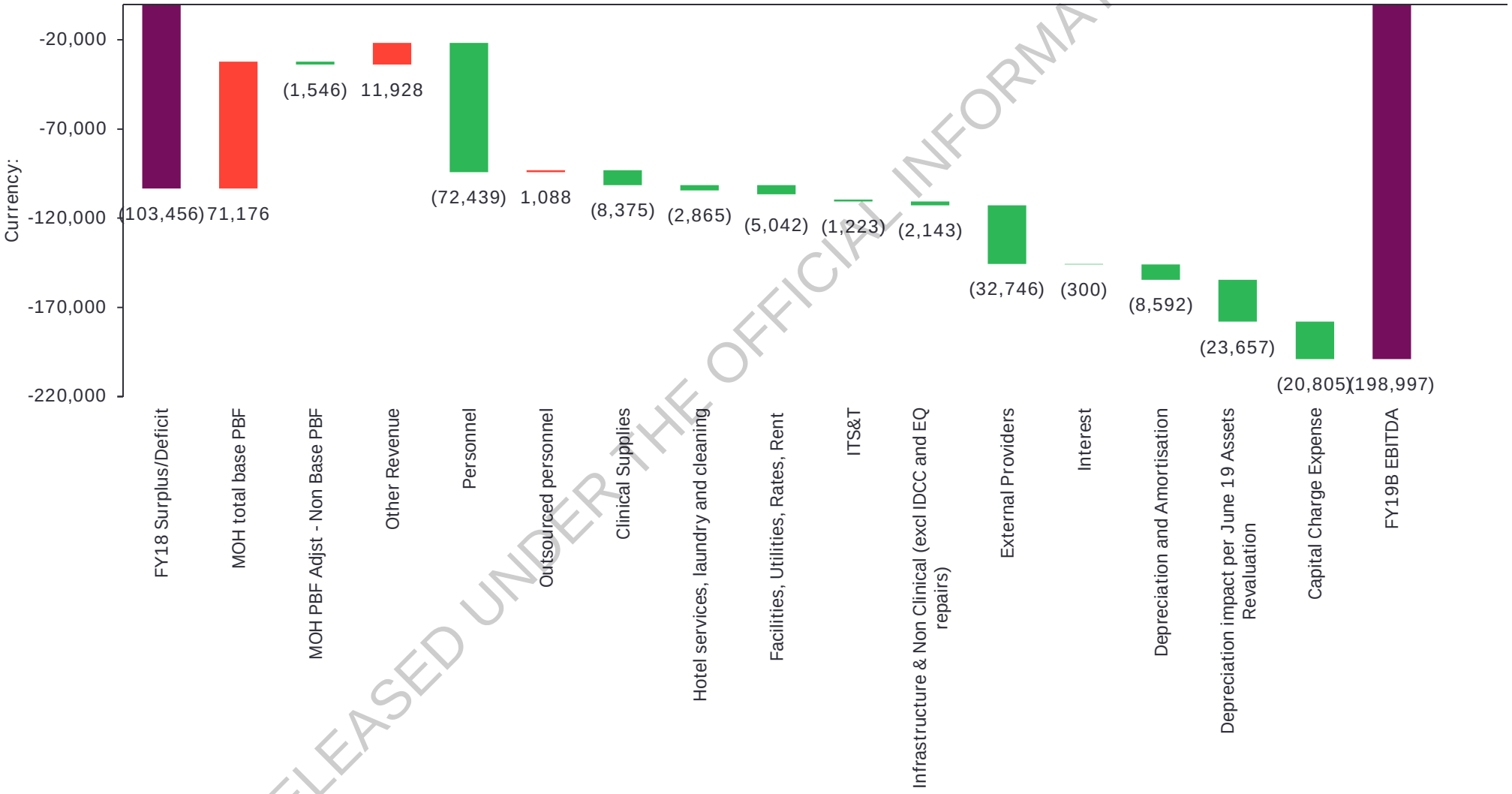
The size of the gap and management challenge

- Almost double the forecast year end result for 18/19
- $132M of the forecast FY19/20 deficit is depreciation and capital charge
- CDHB faces $70M of transition costs – these are not easily offset in 2019/20
- All DHB's cost lines for FY 19/20 are exceeding revenue growth with the most significant being personnel cost growth.
- Significant rates of unplanned leave (Sick leave payments FY18: $21M) in addition to a large annual leave liability which is worsening



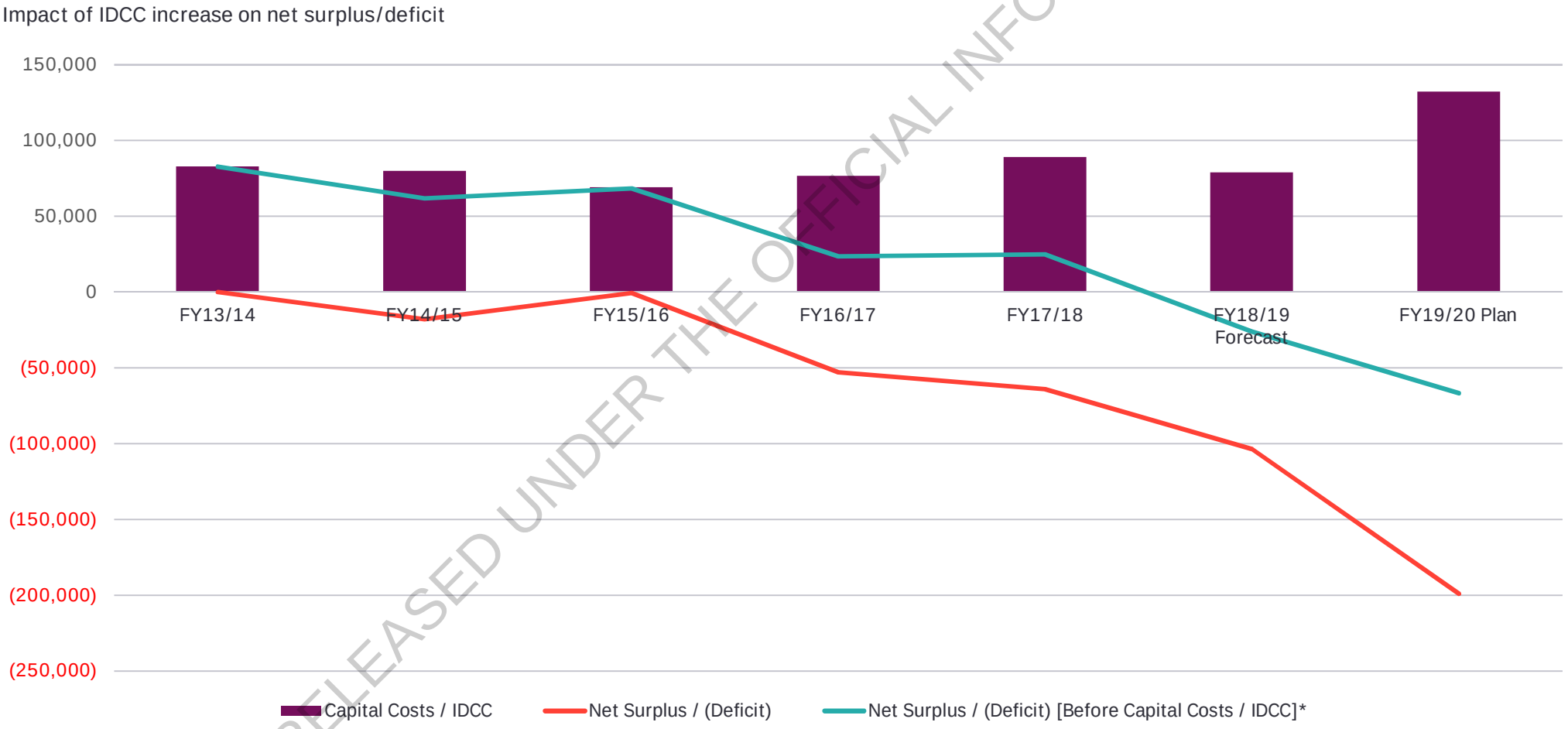
The size of the gap and management challenge cont'd

Figure 1: Key financial movements between forecast year end 2018/19 and budget for 2019/20



Historic and Forecast deficit exclusive of capital charge and depreciation

- CDHB has been building new infrastructure to meet capacity demands and rebuild earthquake damaged facilities.
- FY19/20 capital charge and depreciation costs are expected to be ~$130M



What we found: Insights from quantitative analysis

Expenditure trends

- CDHB had a relatively sustainable financial history prior to the Christchurch Earthquakes.
- Sick leave and annual leave position is worsening
- CDHBs deficit position before IDCC has deteriorated by 130% since FY14.
- The largest cost increase since FY14 is personnel costs, increasing at 32% since FY14.

Deficit Drivers

Transition Costs

- EY and CDHB have jointly compiled and agreed on the quantum of transition costs.
- Costs inclusive of: ASB readiness; stranded FTE as a result of ongoing delays; and out sourcing/out placement of theatre activity.

FTE Growth

- Approximate $10M overspend across FY 17/18 and Q3 18/19
- FTE growth since 1 July 2018 phasing into the next financial year has impacted the DHBs operating position by circa $25M (this is increased headcount only)
- CDHB needs to consider the redistribution of resource from within existing FTE levels

Sick Leave and Annual Leave

- Absenteeism over the last 4 years has climbed by 18.5% with a FY 18 estimated spend of $21m.
- A CDHB report acknowledges that over FY18-19 ~450 staff (5.5% of total DHB workforce) / day were off work, sick.
- Annual leave liability increasing; concerns around approval and tracking of leave

Resourcing

- Gap in nursing resource allocation and occupancy despite the CDHB efforts to reduce the variability with a target of 90% accuracy.
- Further work is required to see if the gap between occupancy and resourcing can be improved.

Approach to deficit recovery

- Focus on achieving breakeven before IDCC
- Significant proportion of savings will need to be achieved through the redeployment of current levels of FTE - opportunities emerging from staff turnover.
- Focusing on the management of sick leave and annual leave – this includes accelerating initiatives to improve sick leave impact and better tracking and management of annual leave
- Optimisation of resourcing against forecast and actual demand/occupancy
- Consider corporate/back office efficiencies – according to MOH keynotes CDHB management/admin costs have increased by 25% since 2014.
- Funder arm line by line review needs to be seriously considered to allow some reprioritisation of resources (EY suggests ~1-2% of total spend)

2

Deficit Drivers

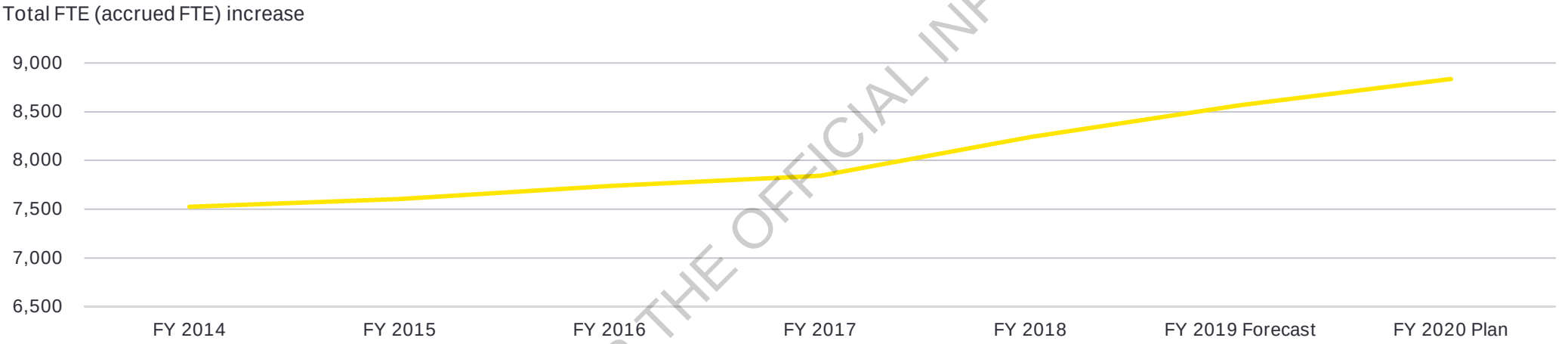
Drivers of deficit: Transition Cost Package ($M)

Ref	Item	2019/20	2020/21	2021/22	2022/23	2023/24	Comments
1	EQ Related Leases	2.6	2.7	2.6	2.6	2.6	
2	Capital Charge on EQ Settlement Proceeds Redrawn as Equity	8.4	9.5	-	-	-	INCL EQ POW funded portion for New Outpatients
3	Incremental Depreciation on EQ POW Capital (INCL Outpatients EQ portion)	5.4	5.6	5.8	6.0	6.2	INCL EQ POW funded portion for New Outpatients
4	Additional Theatre Sessions & Staff cost for outplaced services	0.7	-				Assume ASB commission Nov/Dec 19 (i.e. 5 mths cost 19/20 & NIL from 2020/21 onwards (i.e. BAU)
5	ASB Readiness	8.1		-	-	-	Assume ASB commission Nov/Dec 19 (i.e. 5 mths cost 19/20 & NIL from 2020/21 onwards (i.e. BAU)
6	PMH Stranded Costs	3.0	3.1	3.1	3.1	-	Mix of personnel and facility costs
7	Parking and Shuttles	0.9	1.0	1.0	1.0	1.0	2019/20 and out years assume prior year plus CPI
8	Security	1.8	1.8	1.8	1.8	0.3	2019/20 and out years assume prior year plus CPI - includes additional for MH security (250k pa)
9	Depreciation & Capital Charge - New Outpatients (EXCL EQ POW portion)	0.2	0.2	0.2	0.2	0.2	Full year from 2019/20. EXCL EQ POW funded portion for New Outpatients - see above
12	Incremental Sick Leave	6.91	8.02	8.02	8.02	8.02	TBC (assume 30% increase due to EQ related?)
13	Elective surgery (outsourced & outplaced)	25					TBC
14	Mental health (community and primary mental health)	2.0	2.0	2.0	2.0	2.0	TBC
	Additional capacity community MH	2.8	2.8	2.8	2.8	2.8	Detox and acute community
15	ED Diversion / 24 Hour Surgery	4.9	4.9	4.9	4.9		required till T3/T4 available
	Total transition costs	72.7	41.6	32.22	32.42	23.12	
	Total transition 'savings'		31.1	9.38	(.2)	9.3	

FTE Growth

The 19/20 plan indicate that FTE will grow to 8,835 FTE in 2020, with an estimated additional $72m spend on personnel costs for FY20, an 8.8% increase from the FY19 forecasted personnel spend.

The largest personnel cost growth is Nursing, $15M of which is the cost impact of the MECA, with an additional $23M cost increase on top of the MECA increase.



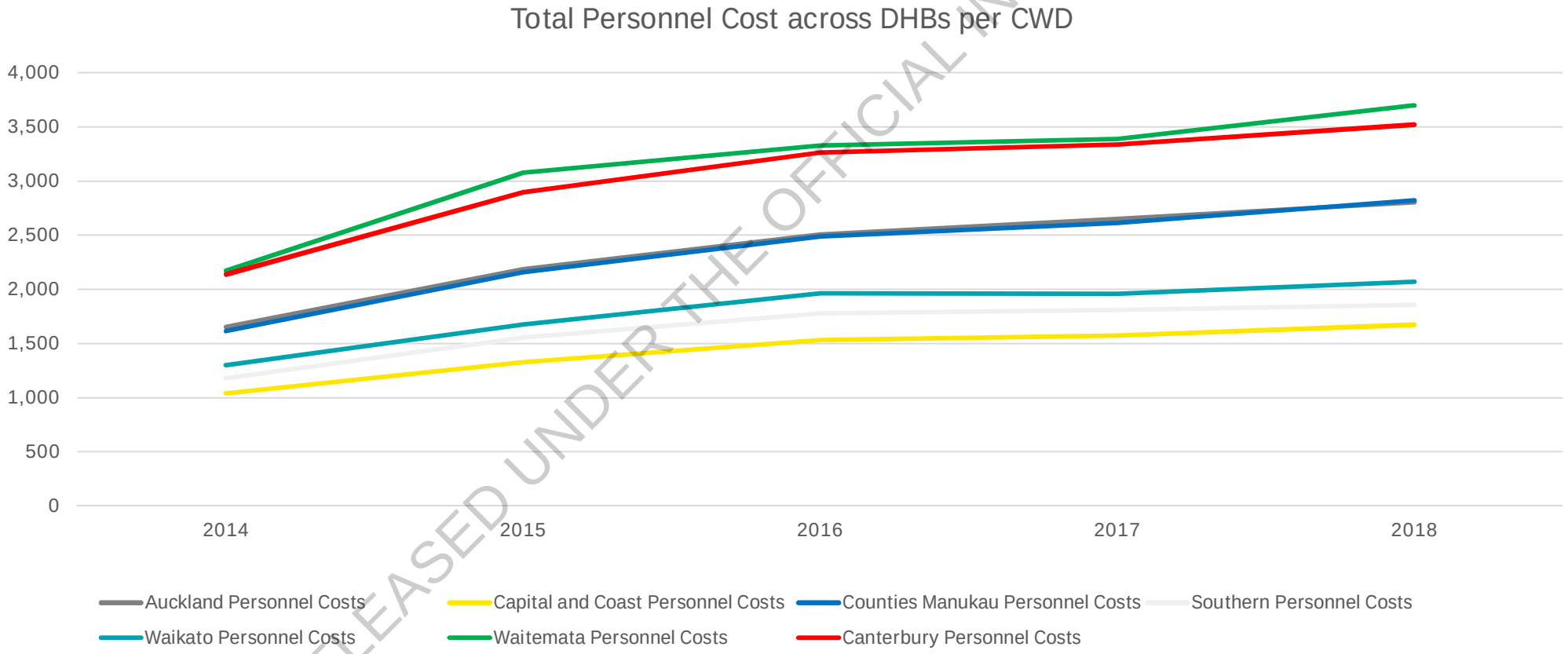
Financial Performance ($'000)	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY19 Forecast	FY20 Plan	Increase since FY14
Medical Personnel	942	924	944	972	1,004			
Nursing Personnel	3,565	3,612	3,688	3,635	3,781			
Allied Health Personnel	1,431	1,462	1,490	1,520	1,539			
Support Personnel	360	360	353	433	641			
Management/Admin Personnel	1,227	1,249	1,261	1,283	1,277			
Total FTEs	7,527	7,605	7,737	7,843	8,243	8,568	8,835	17%

FTE Growth (cont'd)

ASB Recruitment	CDHB have estimated 107 FTE (excluding acute growth, ICU and ED) will be required for the year ending 30 June 2019 for ASB readiness, with a further 86 FTE required for the year ending 30 June 2020.
Schedule 10	Schedule 10 required more FTE to be recruited to comply with the MECA. An additional 31.4 FTE were added as of 14 December 2018.
CCDM uplift	The CCDM Programme has resulted in an expected increase to the FY20 budget of $938,000 for nursing staff due to the increase in FTE required
Support uplift	CDHB brought their laundry in house as at 1 July 2017, with a staff uplift seen in FY18 of approximately 200 support staff

Personnel cost per CWD – all staff

- When the Case-weighted discharge per FTE translated into personnel cost per case-weighted discharge, the Canterbury personnel cost is significantly higher than all peers except Waitemata DHB, and almost twice that of Capital and Coast / Waikato / Southern DHBs

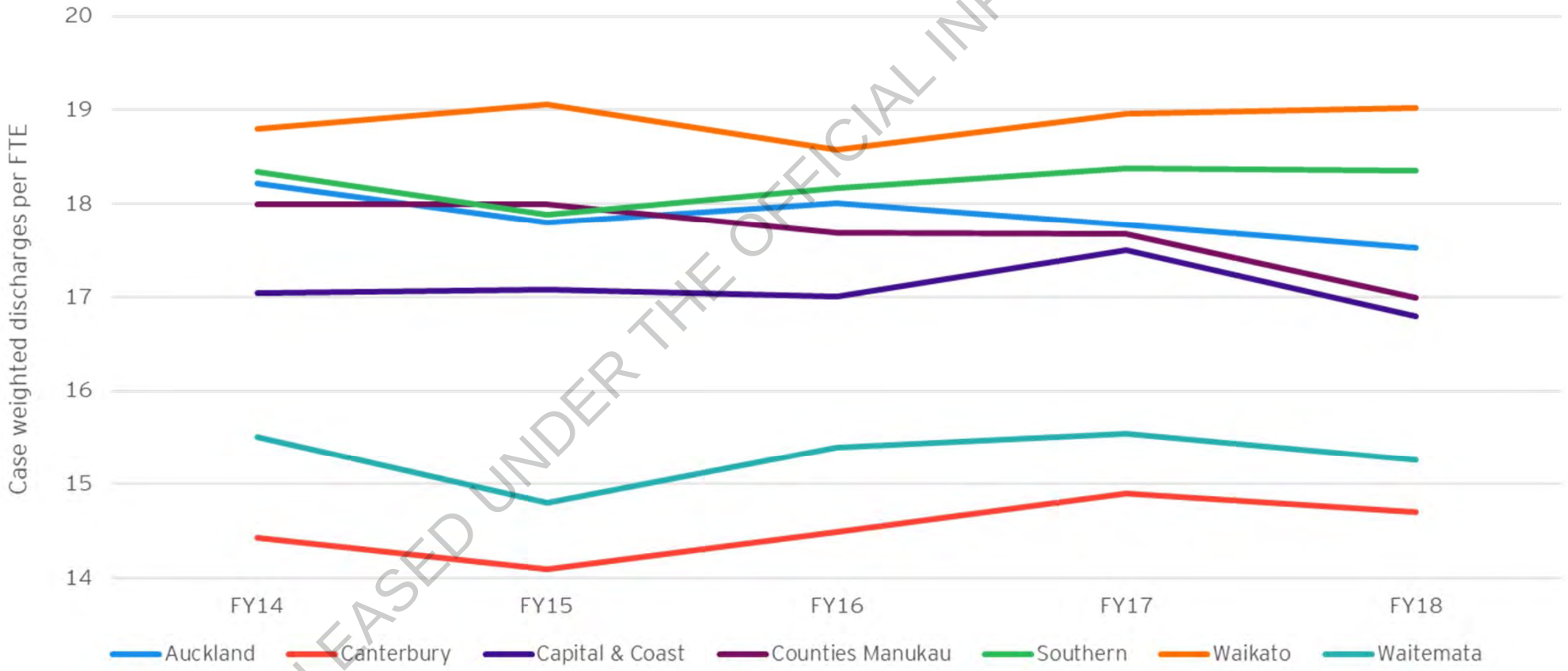


*CDHB, 2019; The story of absence.doc.

Case-weighted discharges per FTE (total)

- Further to the increased personnel cost, when case-weighted discharges are explored on a per FTE basis CDHB has the lowest ratio of peer DHBs; this indicates that Canterbury provides care for a lower case load complexity on a per FTE basis or greater FTEs for production levels.

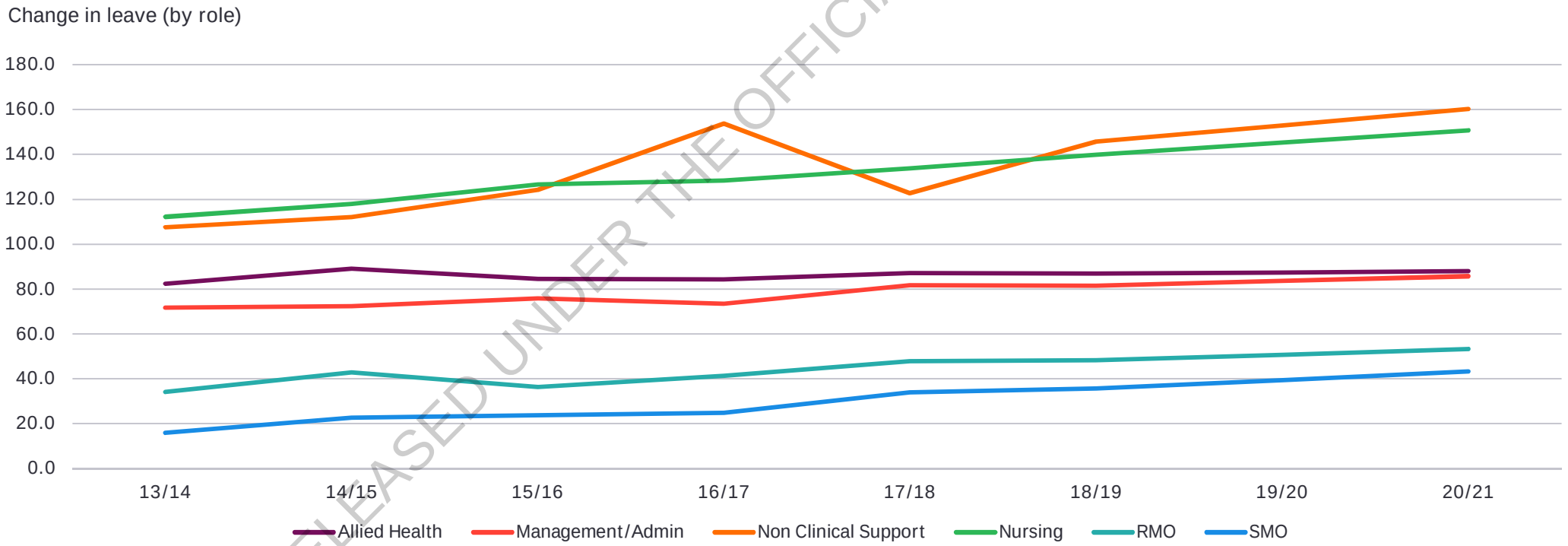
Case-weighted discharges per FTE FY14-FY18



Source: NMDS, CDHB, EY analysis

Sick Leave

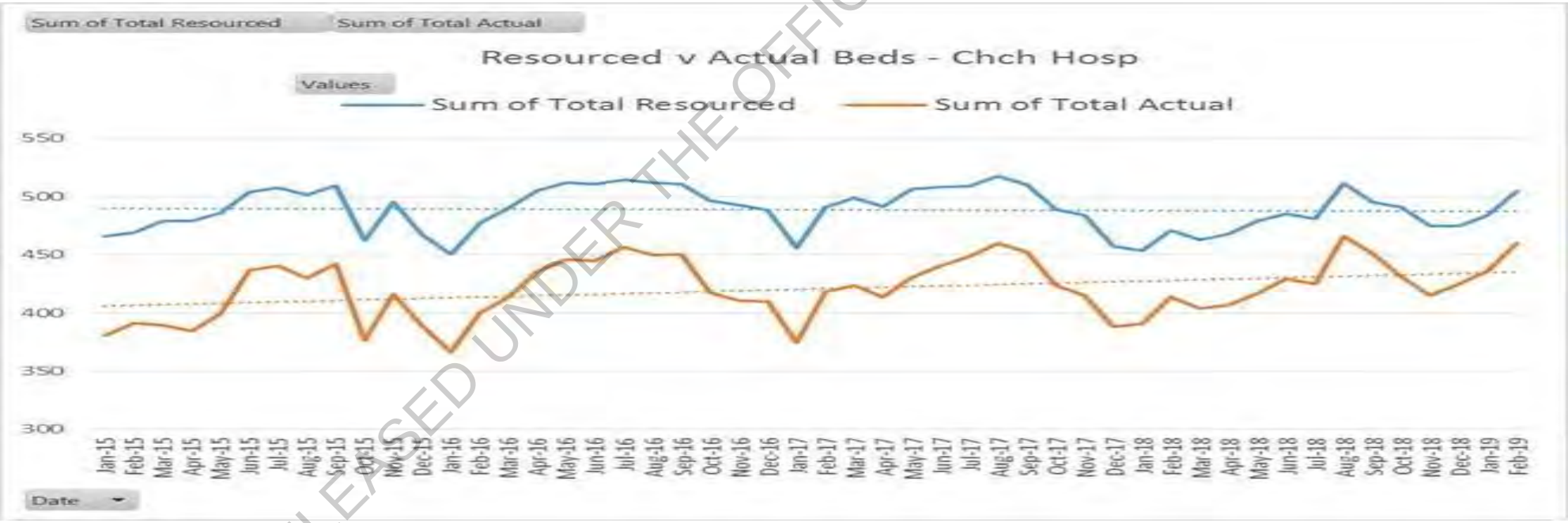
- Unplanned leave has risen by18.5% over the last 4 years to 12.99 days pp/year (FY18 spend $21M)
- CDHB note that adjusted impact cost (using the industry standard factor of 3.5-4) could put the impact at ~$80M* This has not been verified by EY.
- Average amount of sick days factored into the cost of an FTE has been increased from 5-7 to 9-10 days
- ~450 staff will have been absent from work every day across FY 18-19*



*CDHB, 2019; The story of absence.doc.

Occupancy to resourcing - optimisation

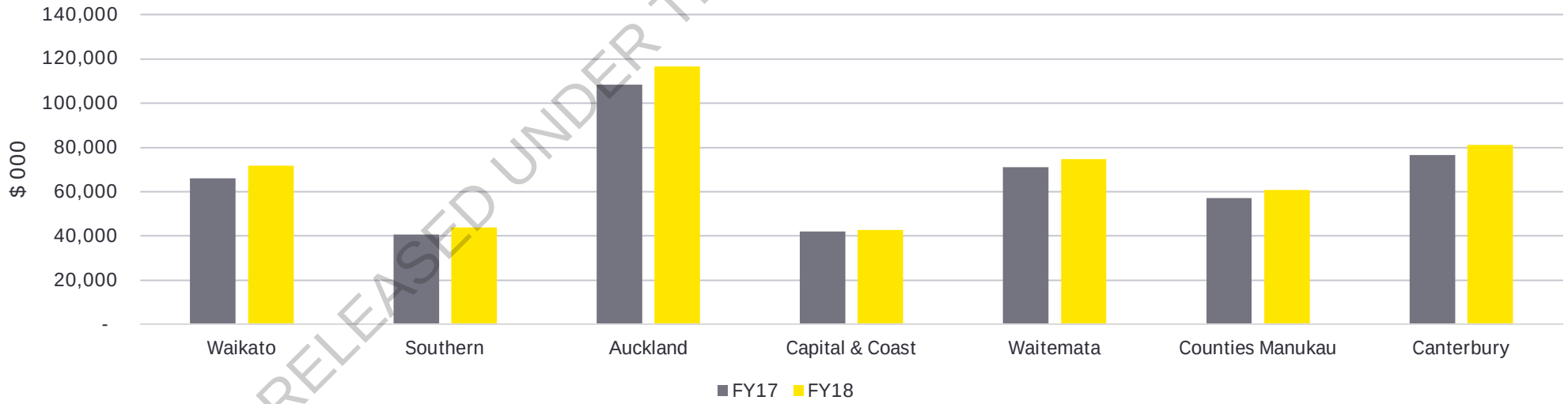
- Bed occupancy is forecast off 4 years of historic prior data.
- Casual pool staffing is constant at RNs: 8,8,10 (AM,PM, Night). These staff are used to primarily cover unplanned leave and then nursing roster gaps
- CDHB recognize the historic resourcing mismatch between resourced versus occupied (not physical) beds. Recent resourcing efficiency efforts aim to exceed 90% occupied against resourced
- There is an opportunity to further explore gains and the deployment of existing resource as per the chart below



Annual leave

- Annual leave liability has increased - of concern we note lack of electronic processes for some staff and reconciliation of leave. Increase is ~ 8% from FY17 to FY18 (FY18 $81M).
- No IT process to manage SMO leave making audit and reconciliation challenging. Management plans if leave >250 hrs. Some staff have 600hrs – 1200hrs leave accrued
- Departmental view of planned and accrued leave is difficult to capture along with net view of (all of department personnel) leave liability
- Risk and Assurance against annual leave liability is scheduled in the DHB 3 year assurance plan but has yet to be completed – internal controls need to be strengthened including the planning and capture of leave and this needs to be a focus of the R&A function

Comparative DHB Annual Leave Liability



CDHB Risk and Assurance Planning – focus on drivers of deficit exists

Summary of three year audit plan (Oct 2018- 2020)

- Recent introduction of data and analytics capability (late 2018) enhancing audit effectiveness – plan is to enhance assurance coverage through emphasis on performing more focused scope of works
- Unplanned delays have affected previous execution and finalization of assurance activity leading to re-drafting of plan for 19-20
- Assurance team note any additional activity against that planned will likely result in re-prioritisation, an increase in resource or additional cost for external consultants

The audit plan signals a requirement to provide assurance to most of the key cost deficit drivers we highlight. These include: review of adequacy and effectiveness of controls over recruitment of staff, annual leave management and employee related costs (3.2,3.3 and 3.9)

- As of June 2019, assurance reporting for leave management and staff recruitment is outstanding.
- Recruitment assurance is scheduled for 2019 with a Terms of Reference currently in draft. The employee related cost audit is close to finalization.

Internal Audit area (high risk) yet to be completed related to Operational and funding review

Auditable Area/Activity (Per Audit Universe)	Residual Risks
1.0 Delegations Authority	► Approved delegated authority are not complied with consistently across Divisions ► Approved delegated authority limits are not followed or exceeded ► Established controls are not complied with or operating effectively
1.8 Subsidiaries/Related	► Inadequate and ineffective controls, including management oversight over key financial and operational areas.
2.1 Budget Achievement/Monitoring (Deferred due to delays in Oracle implementation)	► Inability to achieve financial targets/budgets and contain costs while still providing the required volume and range of services ► Budget managers not adequately managing their budgets to ensure spend is not greater than anticipated. ► Ineffective and inefficient linkage, management and usage of funds
2.9 Investment and Asset Management (Completed)	► Value generated from new and existing investments and assets is not optimised. ► Inefficient and ineffective investment and asset management system. ► Gaps in investment management are not identified and proactively managed.
3.1 Payroll	► New or changed controls may not adequately address weaknesses. ► Internal controls not consistently complied with. ► Incorrect and inefficient implementation of controls arising from changes to staff or internal procedures. ► Inaccurate processing resulting in additional costs to the DHB or liability (debt) to employee(s) ► Fraud
3.2 Leave Management	► Inaccurate and incomplete recording, approval and submissions for processing (includes coding)
3.3 Recruitment	► Policy, procedures and controls over recruitment are not adequate, ineffective and not consistently complied with ► Key legislative requirements and checks are not carried out on staff
3.9 Employee Related Costs (including Allowances, CME, Conferences and Training)	► Inadequate and ineffective controls over approvals, processing and checking of employee related costs
4.1 Procurement and Purchasing	► Non-compliance with policy and processes (includes electronic POs) ► Non-compliance with the mandated Government Rules of Sourcing, Government Procurement Principles, OAG guidelines and best practices ► Inability to leverage the best value from procurement practices
5.8 IT Performance	► Inadequate and ineffective controls to ensure and report performance ► Misalignment of service level delivery to expectations

3

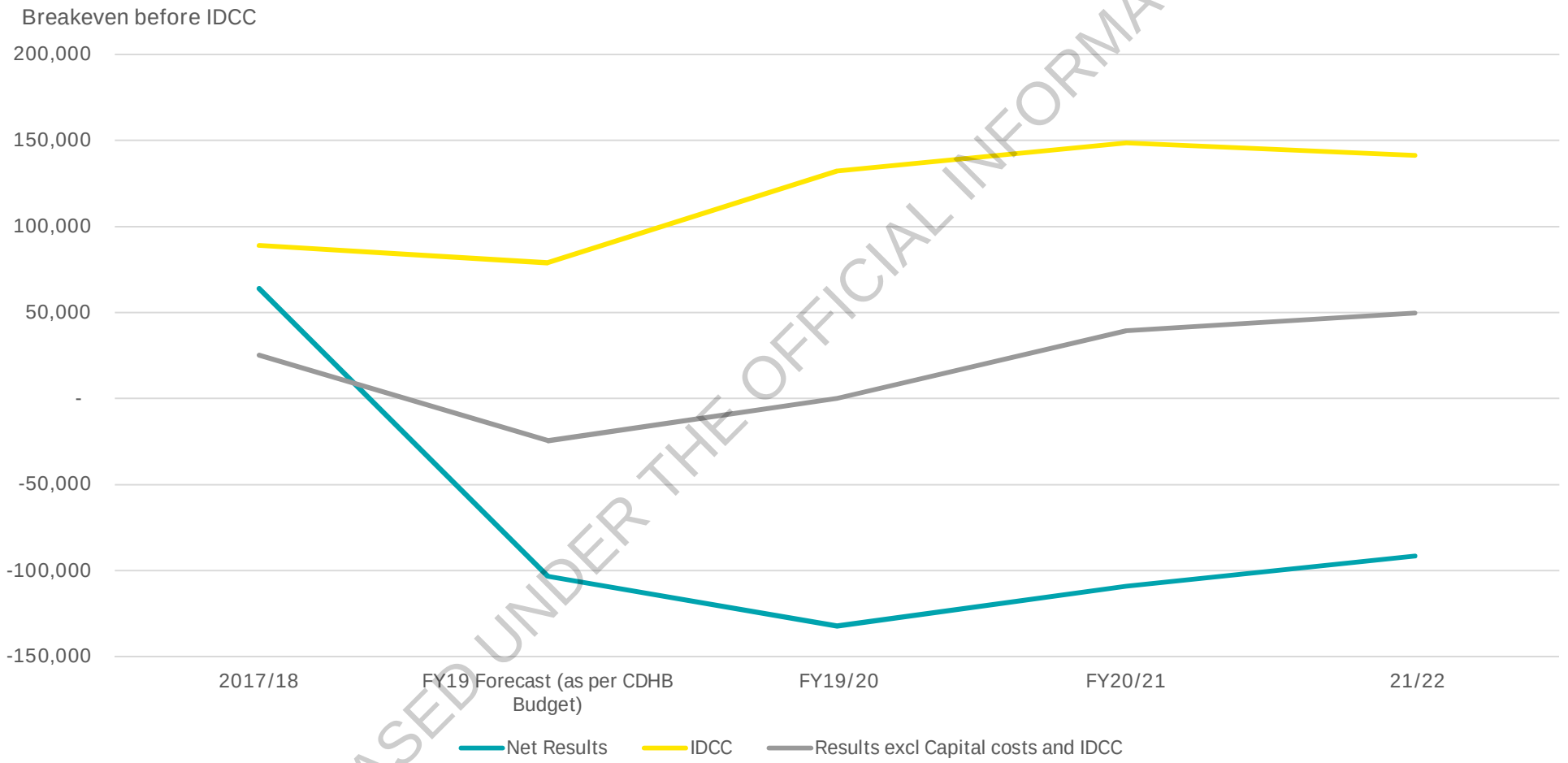
Managing the deficit - Scenarios

Break even before IDCC package FY19/20 – FY 21-22 ($Million)

Area of saving	Breakeven before IDCC		
	FY19/20	FY20/21	FY21/22
Redeploy resource using opportunities from turnover	26.17	-	-
Hold 80FTE for Annual Plan headcount not recruited	7.0	-	-
Sick leave management programme (inclusive of $1m costs)	8.0	2.0	2.0
Corporate efficiencies (10% reduction) ($106kx10% of 702 = $7.4m)	7.4	-	-
Outsourced / outplaced (dependent on volumes to be insourced)	8.0	-	-
Reduce outsourced personnel spend (10% reduction)	2.2	-	-
Funder Arm line by line review (discretionary contracts only)	8.0	8.0	8.0
Ashburton: (CDHB proposed initiative) [footnote] ► Home based support to outsourced services ► Closure of 55 bedded area – 34 FTE shifted away from the hospital ► $1m post implementation costs	1.0	1.0	1.0
► Non weight bearing services	1.0		
Bring forward work to close rural hospitals (CDHB proposed initiative – EY does not support): (noting this will require significant work to close. Saving not realised FY19-20		2.5	2.5
Total	66.77	12.5	12.5
Total over 3 years ($ Million)	91.7		

*EY notes the inclusion of the initiatives relating to Ashburton and regional facilities as per above – we suggest other initiatives should be pursued and gains substituted as replacements

Scenario – Breakeven before IDCC



Forecast operating position – breakeven package

1. Surplus before IDCC of $0M 19/20. Increases to surplus of $39m before IDCC in 20/21.

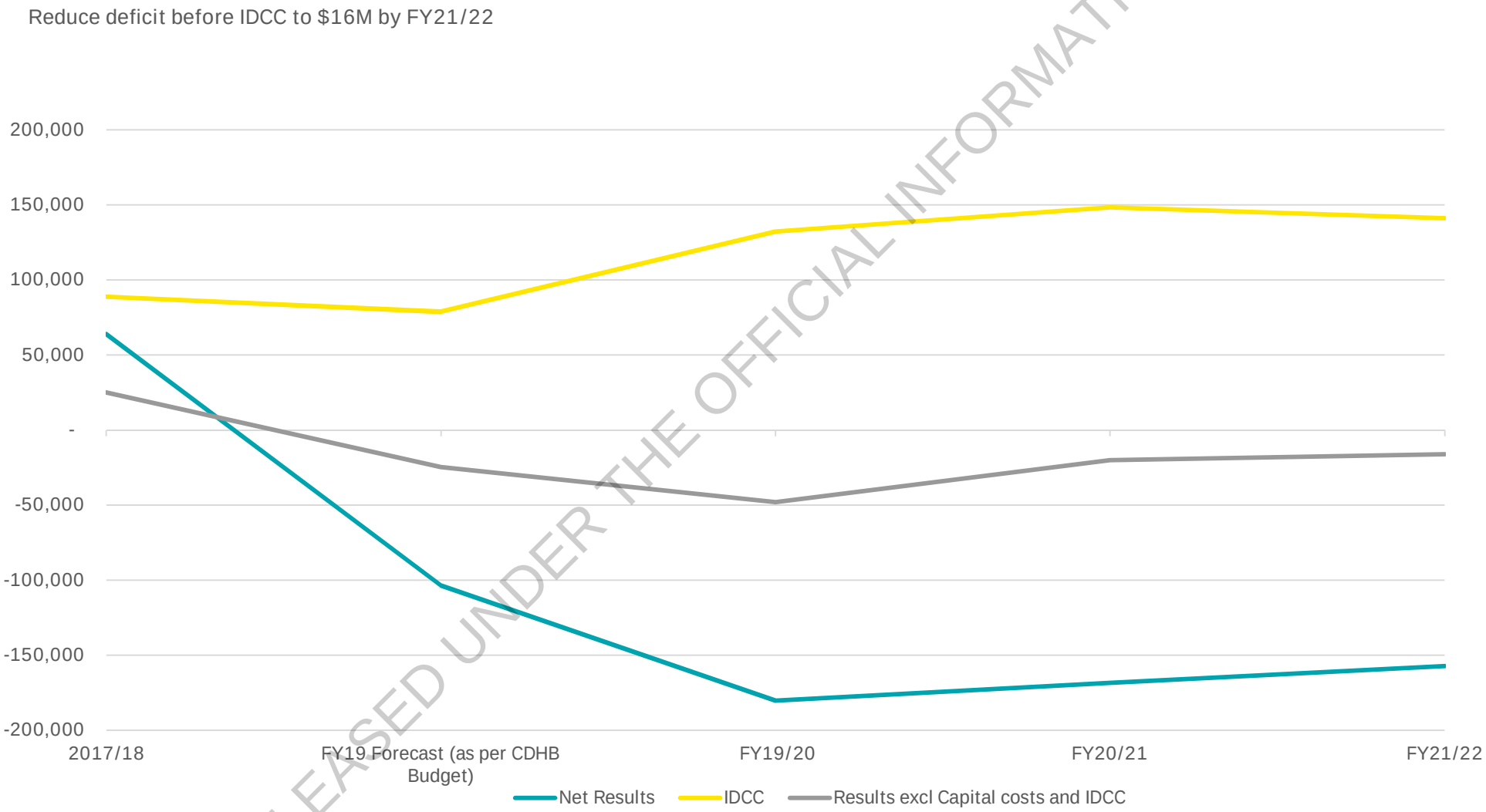
2. Transition cost package defined with a decreasing profile from $31M in 20/21 to $9M in 21/22

3. The scenario can achieve breakeven before IDCC in 19/20 due to forward loading of savings, a range of funder arm and corporate efficiency proposals and recruitment phasing/FTE redeployment from turnover which may have operational impacts if not well managed

4. Forecasts are based on 3.5% cost growth and 4% revenue increases – changes to these assumptions are material to future operating position

5. Overall total deficits remain high as costs continue to grow over time and IDCC remains very high ($141M in FY21/22, however deficit before IDCC is eliminated with increasing surplus before IDCC reaching $50M by FY 21/22)

Scenario – Reduce deficit before IDCC to $16M by 21/22



Forecast operating position (reduce deficit before IDCC to $16M by 21/22)

1. Deficit before IDCC of $48M 19/20. Decreases to deficit of $20M before IDCC in 20/21.

2. Transition cost package defined with a decreasing profile from $31M in FY20/21 to $9M in FY 21/22

3. This scenario has far more modest initiatives to redeploy resources from within existing FTE levels and excludes a range of initiatives needed to achieve breakeven before IDCC.

4. Forecasts are based on 3.5% cost growth and 4% revenue increases – changes to these assumptions are material to future operating position

5. Overall total deficits remain high within this scenario mainly driven by IDCC costs. However deficit before IDCC is reduced to $16M by FY21/22.

4 Roadmap to recovery

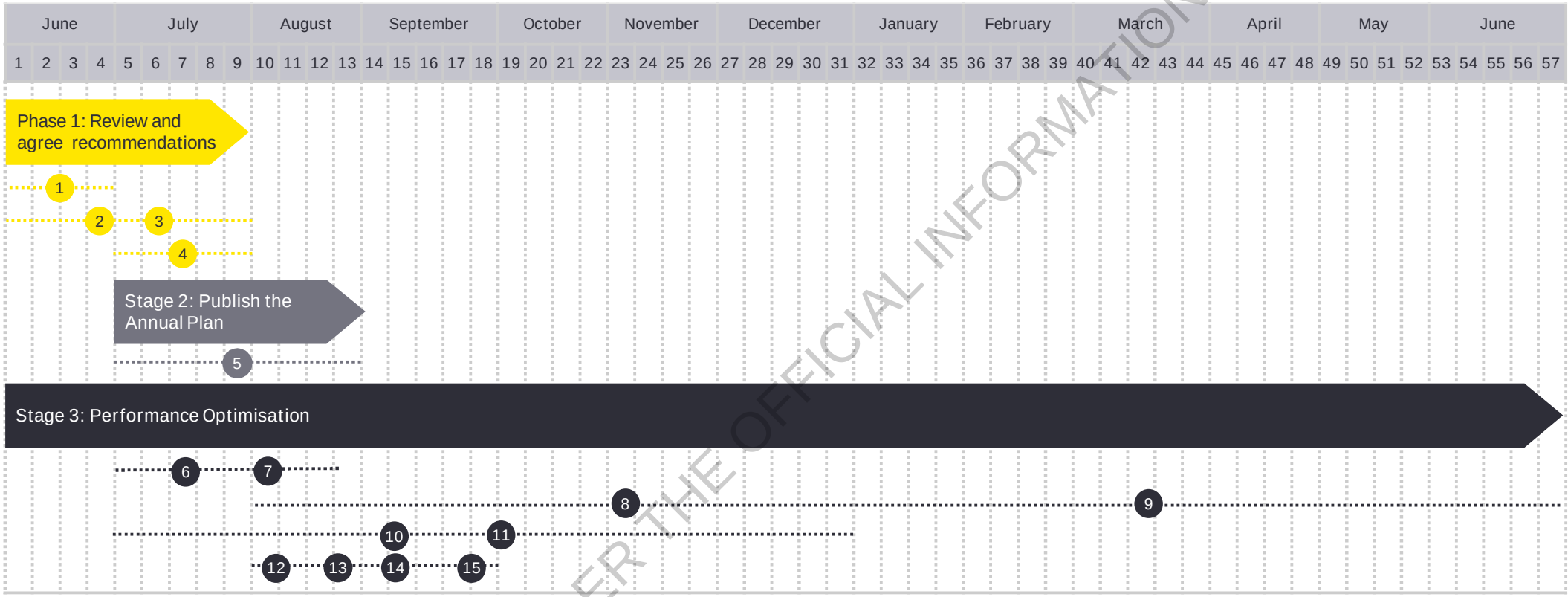
Next steps: potential elements of an operating plan

	Phase recruitment and turnover	Sick leave	Annual leave	Resourcing and Service gains	External provider arm contracts
Description	► CDHB (as of March '19) had 174 FTE higher than budget, with significant overspend against forecast in personnel line. ► EY and CDHB have worked to look at what potential savings against turnover may look like	Data demonstrates CDHB has very high levels of sick-leave – can a programme be developed to investigate reduction of sick leave or more cost-effective cover of sick-leave?	CDHB has a significant leave liability - a reduction of that liability would produce in the year it is achieved operating savings and subsequent balance sheet efficiencies	CDHB has discussed with us the need to optimise the impact of the gap between utilization/occupancy, forecasting and deployment of resource. CDHB has indicated gains could be made within ATR and ARC.	We have discussed with the CDHB undertaking a value for money review of genuinely discretionary external provider contracts
Emerging issues	► CDHB need to agree on redeploying resource from existing FTE levels ► CDHB need to consider the caveats / implications of staff turnover ► CDHB need to work with management teams and clinical leads to realise these goal	► We are accessing sick leave data – levels of sick leave are significant and drives additional costs eg covering unplanned leave. ► CDHB has been required to use agency staff and casual pool to manage the impacts of sick leave	► Annual leave entitlements are circa $80 million and growing every year. ► Urgent review of internal controls and management required – we suggest a retrospective review of the last 2-3 years of annual leave by service/individual	► Processes and flow to be assessed according to leading practice, against a clear set of external reference parameters. ► We would like to investigate establishing a continual improvement/ optimisation programme with the DHB for these areas	► The vast majority of external provider contracts are not discretionary and driven by volume and price mechanisms set elsewhere ► Nevertheless potential gains need to be explored as a matter of urgency

Performance Optimisation:

CDHB has the opportunity to overlay a Performance Optimisation methodology to realize the savings that will be embedded into the Operating Plan. Utilizing the PO Framework may potentially enable the realization of additional savings especially with sickness, annual leave management and resource / demand management.

Roadmap for implementation of recommendations



1. Validate and agree savings areas and targets
2. Test and validate service analysis and incorporate findings into optimisation work (eg ATR / ARC)
3. Test and validate input assumptions for 19/20 pro forma operating statement (eg: MECA uplifts and Funder Arm reprioritisation to offset price increases)
4. Revised annual budget projection FY 19-20
5. Draft Annual / Operating Plan
6. Understand how existing staff can be used to offset or phase planned 19/20 recruitment
7. Introduce savings goals against recruitment
8. Complete and implement sick leave savings strategy with ongoing monthly reporting at ward / unit level and quarterly review
9. Complete and implement revised annual leave management strategy with ongoing monthly reporting at ward / unit level and quarterly review
10. Occupancy vs. Resourcing demand review. Strategy development for next steps
11. Review of ward based working establishment and benchmarking against other acuity / resourcing based models
12. Funder arm / contracts review process and development of savings strategy
13. Detailed Review of purchasing controls
14. Detailed Review of Pharmacy spend
15. Review of Corporate costs

Key: *Estimated activity duration (including necessary preparation if engagement)*

Appendix: Revenue and expense

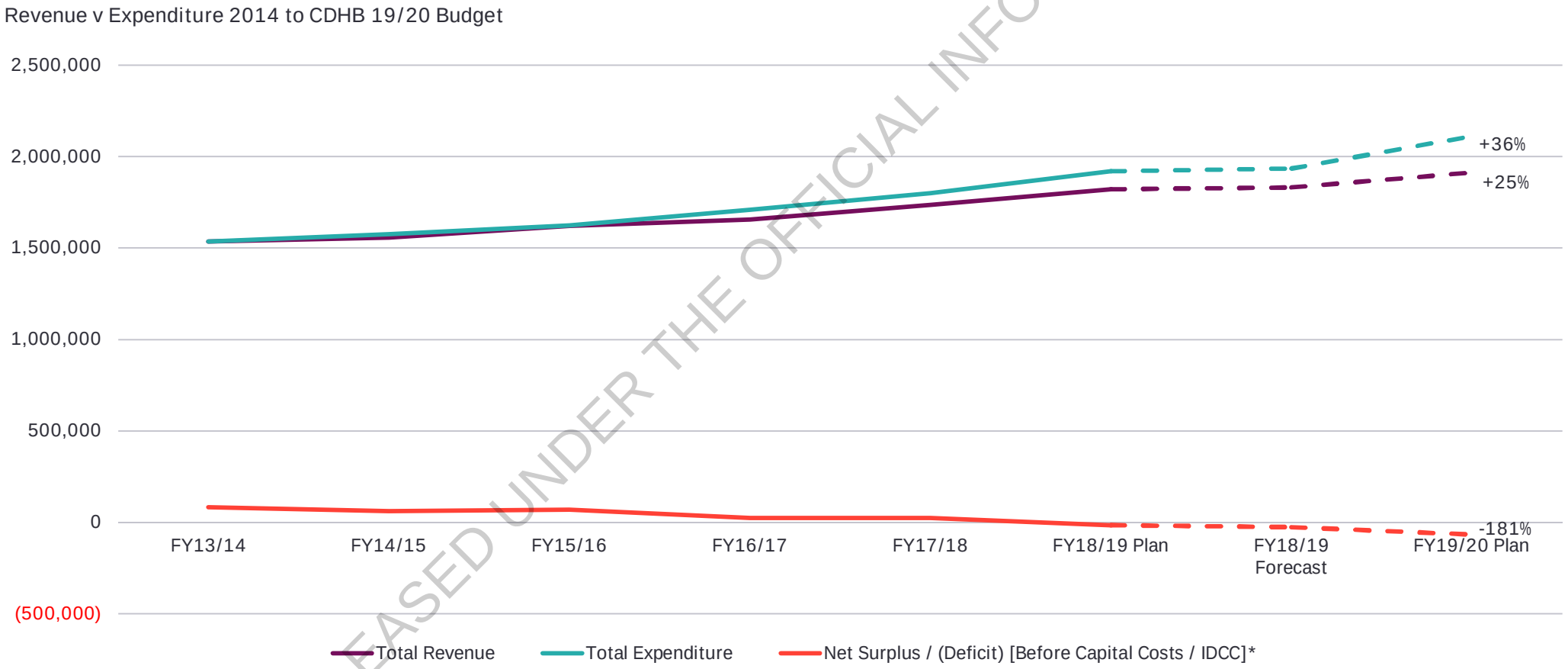
Net surplus/deficit five year trend

CDHB has experienced a worsening net surplus/deficit before IDCC since FY14, at a 130% decrease since FY14 before IDCC. The largest cost increase since FY14 is personnel costs, increasing at 32% since FY14.

Financial performance ($'000)	FY14	FY15	FY16	FY17	FY18	Increase from 2014 - 2018	% increase from FY14 to FY18	FY19 Forecast	FY20 Plan	% increase from FY14 to FY20 plan
Total Revenue	1,536,187	1,558,651	1,622,492	1,656,105	1,736,098	199,911	13%	1,831,528	1,913,140	25%
Personnel Costs	621,743	643,823	675,097	704,206	755,125	*133,382*	*21%*	810,649	819,799	*32%*
Outsourced Personnel & Services	20,998	21,073	26,920	25,907	28,801	*7,803*	*37%*	23,464	22,376	*7%*
Clinical Supplies	129,799	140,178	133,550	142,871	144,638	*14,839*	*11%*	143,326	151,701	*17%*
Infrastructure & Non-Clinical Supplies	97,024	108,914	111,616	116,278	103,128	*6,104*	*6%*	110,233	121,506	*25%*
Capital Costs / IDCC	82,861	79,929	69,035	76,500	89,008	*6,147*	*7%*	78,905	132,259	*60%*
External Providers										
Personal Health provider payments	347,984	345,274	365,556	397,262	402,617	*54,633*	*16%*			
Mental Health provider payments	43,522	44,100	45,154	44,497	46,240	*2,718*	*6%*			
Disability Support Services (HOPS) provider payments	188,052	188,796	190,466	195,739	224,929	*36,877*	*20%*			
Public Health provider payments	2,318	2,484	3,385	3,834	3,738	*1,420*	*61%*			
Maori Health provider payments	1,886	2,017	2,186	1,844	1,833	*-53*	*-3%*			
Total external providers	583,762	582,671	606,747	643,176	679,357	*95,595*	*16%*	759,311	792,057	*36%*
Total Expenditure	1,536,187	1,576,587	1,622,965	1,708,938	1,800,057	*263,870*	*17%*	1,935,038	2,112,137	*37%*
Net Surplus / (Deficit)	0	(17,936)	(473)	(52,833)	(63,959)	(63,959)	100%	(103,456)	(198,997)	
Net Surplus / (Deficit) [Before Capital Costs / IDCC]*	82,861	61,993	68,562	23,667	25,049	(57,812)	70%	(24,551)	(66,738)	130%
Net Surplus/(Deficit) Before Capital Costs/IDCC % movement		-25%	11%	-65%	6%	-70%				
Net Surplus / (Deficit) [Before Depreciation]**	58,417	43,262	57,261	3,435	(5,304)	(63,721)	109%	(49,995)	(113,287)	293%

Revenue and expense FY14-FY18 trend

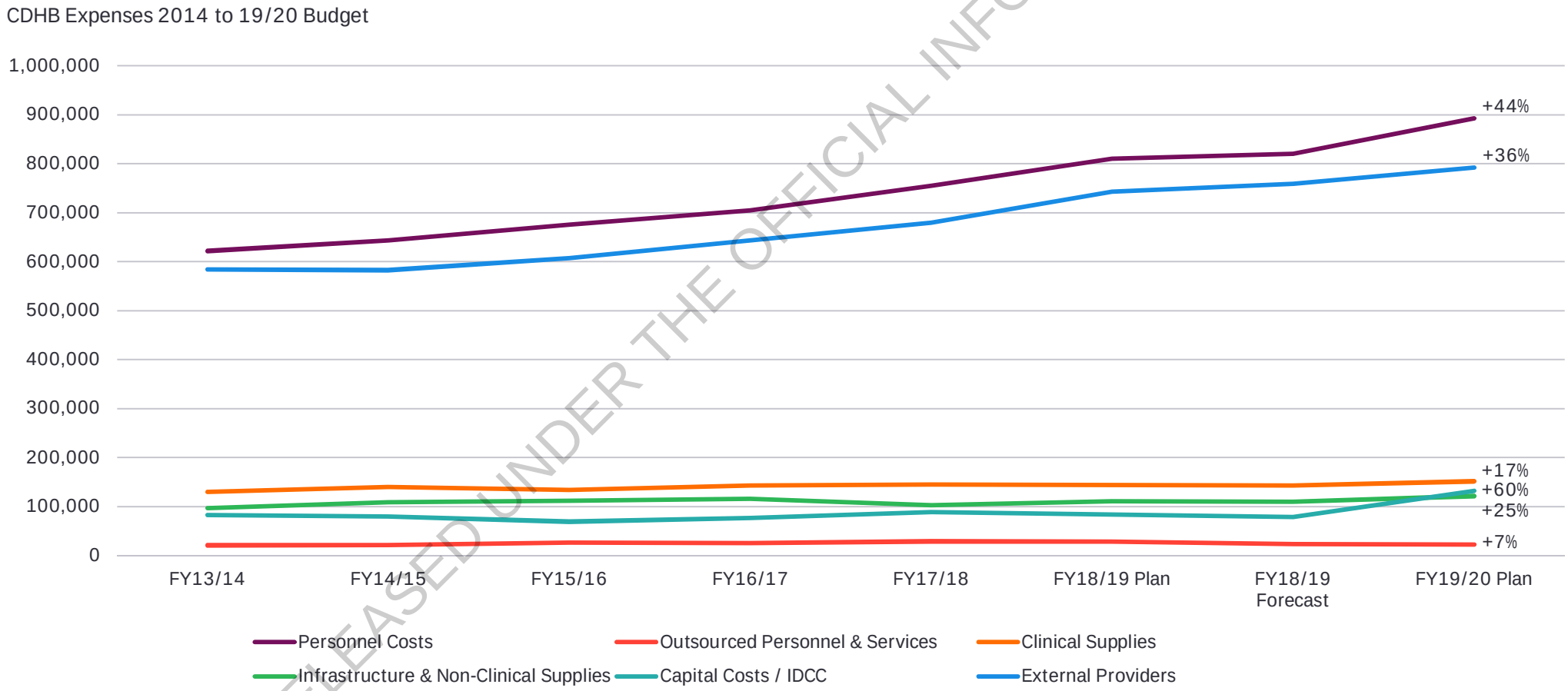
CDHB has incurred increasing costs since FY14 which have exceeded revenue growth. Without the impact of IDCC, the net surplus/deficit of CDHB has decreased by 181% to the budgeted FY19/20 net deficit before IDCC of $66.7M



Expenditure growth FY14 – FY19/20 Budget

The below highlights the growth in all CDHB expense lines, which are expected to continue into FY20.

The most significant increases are a 60% increase in IDCC since FY14, and a 44% increase in personnel costs.

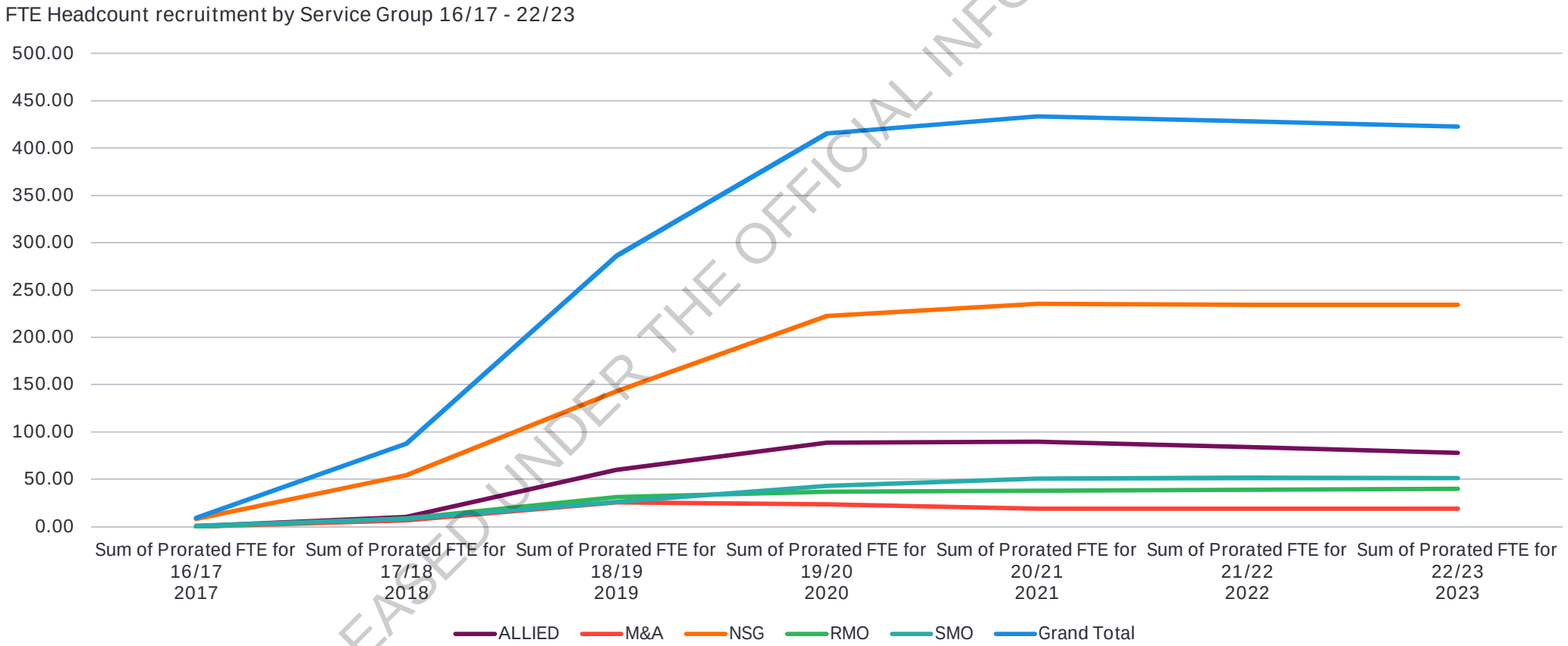


Recruitment including recruitment anticipated for ASB

CDHB has provided information on FTE pipeline.

Over half of actual and planned recruitment is driven by facilities coming on-line.

A summary of rationale for recruitment planned and anticipated include ASB, acute growth, absence cover, increasing operating hours and ongoing trainee recruitment/ASB, covering almost all hospital departments and areas.



Budgeted v Actual FTE

EY obtained CDHB's budgeted and actual FTE figures submitted to the Ministry of Health over the past 2 years.

From this, we can see CDHB has increased their FTE volume and cost largely across the board and are on track to do so for FY19.

From the budget for 19/20, CDHB expects a further 267 (from revised forecast for FY19) FTE to an average FTE of 8,835.

	2018				March 2019			
	Actuals	Plan	Variance		YTD Actuals	YTD Actuals	Variance	
			$	%			$	%
Personnel Costs ($'000)								
Medical Personnel	212,938	211,003	(1,935)	(1%)	175,086	170,202	(4,884)	(3%)
Nursing Personnel	301,891	295,810	(6,081)	(2%)	240,216	241,931	1,715	1%
Allied Health Personnel	115,468	115,078	(390)	(0%)	92,725	90,553	(2,172)	(2%)
Support Personnel	32,078	30,585	(1,493)	(5%)	27,636	25,428	(2,208)	(9%)
Management/Admin Personnel	92,750	93,249	499	1%	74,611	71,742	(2,869)	(4%)
Total Personnel Costs	755,125	745,725	(9,400)	(1%)	610,274	599,856	(10,418)	(2%)
FTEs (#'s)								
Medical Personnel	1,004	991	(13)	(1%)	1,049	1,018	(32)	(3%)
Nursing Personnel	3,781	3,717	(64)	(2%)	3,925	3,848	(77)	(2%)
Allied Health Personnel	1,539	1,543	4	0%	1,552	1,550	(2)	(0%)
Support Personnel	641	615	(26)	(4%)	662	650	(12)	(2%)
Management/Admin Personnel	1,277	1,301	24	2%	1,339	1,287	(52)	(4%)
Total FTEs	8,243	8,168	(75)	(1%)	8,527	8,352	(174)	(2%)

B

Appendices: Turnover scenarios

Appendix 1

Turnover savings: $2,655,686

The below turnover table has taken into account the time of year the employees have left and applied the same phasing to FY20. This therefore represents the cost of all leavers throughout the year, not all at a point in time.

This scenario considers a 20% recruitment hold, excluding MH nursing and RMO / SMO

	100%	80%	60%	40%	20%
All professions (excl mental health)	26,169,317	20,935,454	15,701,590	10,467,727	5,233,863
Specific profession decreases					
Nursing (excl mental health)	7,606,822	6,085,458	4,564,093	3,042,729	1,521,364
Non patient facing (management/admin (excl corporate) & support)	3,270,615	2,616,492	1,962,369	1,308,246	654,123
RMO/SMO	6,268,069	5,014,455	3,760,841	2,507,228	1,253,614
Service type decreases (excl professions detailed above)					
Older person's health (excl RMO/SMO, RNs, Support)	609,337	487,469	365,602	243,735	121,867
Corporate (management/admin ONLY)	1,791,661	1,433,329	1,074,997	716,664	358,332
Resource redeployed from turnover					2,655,686

Turnover savings: $3,983,350

The below turnover table has taken into account the time of year the employees have left and applied the same phasing to FY20. This therefore represents the cost of all leavers throughout the year, not all at a point in time.

	100%	80%	60%	40%	20%
All professions (excl mental health)	26,169,317	20,935,454	15,701,590	10,467,727	5,233,863
Specific profession decreases					
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Non patient facing (management/admin (excl corporate) & support)	3,270,615	2,616,492	1,962,369	1,308,246	654,123
RMO/SMO	6,268,069	5,014,455	3,760,841	2,507,228	1,253,614
Service type decreases (excl professions detailed above)					
Older person's health (excl RMO/SMO, RNs, Support)	609,337	487,469	365,602	243,735	121,867
Corporate (management/admin ONLY)	1,791,661	1,433,329	1,074,997	716,664	358,332
Resource redeployed from turnover					$3,983,350

Turnover savings: $4,457,534

The below turnover table has taken into account the time of year the employees have left and applied the same phasing to FY20. This therefore represents the cost of all leavers throughout the year, not all at a point in time

This scenario considers: a 20% turnover package, excluding MH nursing and RMO / SMO

RNs – 60% hold for 6 months, dropping to 40% freeze last 6 months (excluding MH nurses)

40% hold for 6 months, 20% for the last 6 months all other personnel

	100%	80%	60%	40%	20%
All professions (excl mental health)	26,169,317	20,935,454	15,701,590	10,467,727	5,233,863
Specific profession decreases					
Nursing (excl mental health)	7,606,822	6,085,458	4,564,093	3,042,729	1,521,364
Non patient facing (management/admin (excl corporate) & support)	3,270,615	2,616,492	1,962,369	1,308,246	654,123
RMO/SMO	6,268,069	5,014,455	3,760,841	2,507,228	1,253,614
Service type decreases (excl professions detailed above)					
Older person's health (excl RMO/SMO, RNs, Support)	609,337	487,469	365,602	243,735	121,867
Corporate (management/admin ONLY)	1,791,661	1,433,329	1,074,997	716,664	358,332
Resource redeployed from turnover					$4,457,534

Turnover savings: $5,711,148

The below turnover table has taken into account the time of year the employees have left and applied the same phasing to FY20. This therefore represents the cost of all leavers throughout the year, not all at a point in time

This scenario considers: a 20% turnover package, excluding MH nursing

RNs – 60% hold for 6 months, dropping to 40% hold last 6 months (excluding MH nurses)

40% hold for 6 months, 20% for the last 6 months all other personnel

20% hold for 12 months for RMO / SMO

	100%	80%	60%	40%	20%
All professions (excl mental health)	26,169,317	20,935,454	15,701,590	10,467,727	5,233,863
Specific profession decreases					
Nursing (excl mental health)	7,606,822	6,085,458	4,564,093	3,042,729	1,521,364
Non patient facing (management/admin (excl corporate) & support)	3,270,615	2,616,492	1,962,369	1,308,246	654,123
RMO/SMO	6,268,069	5,014,455	3,760,841	2,507,228	1,253,614
Service type decreases (excl professions detailed above)					
Older person's health (excl RMO/SMO, RNs, Support)	609,337	487,469	365,602	243,735	121,867
Corporate (management/admin ONLY)	1,791,661	1,433,329	1,074,997	716,664	358,332
Resource redeployed from turnover					$5,711,148

Turnover savings: $11,234,972

The below turnover table has taken into account the time of year the employees have left and applied the same phasing to FY20. This therefore represents the cost of all leavers throughout the year, not all at a point in time

- This scenario considers: a 20% recruitment hold against turnover, excluding MH nursing
- RNs – 80% hold for 6 months, dropping to 60% hold last 6 months (excluding MH nurses)
- 60% hold for 12 months all other personnel, except RMO / SMO
- 40% hold for 12 months for RMO / SMO

	100%	80%	60%	40%	20%
All professions (excl mental health)	26,169,317	20,935,454	15,701,590	10,467,727	5,233,863
Specific profession decreases					
Nursing (excl mental health)	7,606,822	6,085,458	4,564,093	3,042,729	1,521,364
Non patient facing (management/admin (excl corporate) & support)	3,270,615	2,616,492	1,962,369	1,308,246	654,123
RMO/SMO	6,268,069	5,014,455	3,760,841	2,507,228	1,253,614
Service type decreases (excl professions detailed above)					
Older person's health (excl RMO/SMO, RNs, Support)	609,337	487,469	365,602	243,735	121,867
Corporate (management/admin ONLY)	1,791,661	1,433,329	1,074,997	716,664	358,332
Resource redeployed from turnover					$11,234,972

Caveats to the Turnover Scenarios

General
The data is from July 2016 to date. This is due to the structure of the chart of accounts for CDHB being changed.
Account code level data prior to the Chart of Account change will show incorrect matches. This in turn will result in any trending appearing to suddenly change at the point of the new chart of accounts structure. For example this specifically will impact Allied Health, and to lesser degree in Nursing, Support and Management / Admin
Data from PSe is payment data not accrued. Data in a month will therefore be dependent on the number of pay periods in the month. The pay period is determined by the last Sunday. This is smoothed by dividing the FTE by the number of pay periods multiplied by 4.
1 FTE is based on 2086 hours per year for our calculations. We do not factor in the fact that some MECA's use 1846 hours and 1820 hours as 1 FTE.
Contractors and external bureau staff are excluded from these calculations as they are not paid through the payroll application.
Due to a large number of MECA implementations payments have increased significantly in the last 12 months. They are made up of lump sum, step increase and arrears amounts.
Employee Data
If you leave the DHB and come back in another capacity within a three month period then you will use the same Employee ID. This has been in place since November 2017. Prior to 2017 employees if rehired after 3 months were still given their old employee number. Noting that this is only in some case.
If a employee is rehired on their old employee number the start date will change to their new start date. If they are still a current employee they will not show up as a previous leaver in the report. This means that the turnover could be slightly higher. Can only be manually determined.
Some rehires will be a transfer to casual. This is because an employee has to be terminated then rehired so that all their leave balances can be paid out. In order to determine you need to investigate the history of each and make a manual determination.
You cannot assume that all rehires as appointee type casual are transfers to casual as some maybe rehires within 3 months but not straight away.
Previously employees if rehired after 3 months were meant to be given their old employee number. Note that in some cases this was not the case.
Multi position is where an employee has two or more roles with the DHB. There are approximately 6% of the CDHB employees in this position affecting 11%-12% of the records. The more granular you delve into the detail the higher the risk of double counting.

Caveats to the Turnover Scenarios

Employee data (cont.)
If an employee in a multi position resigns two roles will be counted. At a high level this has minimal effect, but again the more granular you go the larger the impact.
Some hired employees Do Not Start (DNS). As we are snapshotting data they may show as a start in one month and a DNS in the following. This is not substantial.
Organisation
The CDHB is fluid with numerous organisational changes. This may involve moving all people to a new organisation unit or just some or just changing the name. The description of organisational unit therefore may not be totally accurate. Comparing trends by organisation groupings may result in some misleading trends as a result. Matching across trends is a manual process because changes weren't made like for like.
Location information can be inaccurate as the CDHB focusses on a service based approach. This means that staff can work across multiple locations. Note also this is due to the fact location information is not proactively managed by teams and informing of changes. It is a free text field within the database. Med/surg for example are location static on the Christchurch Hospital campus. Mental Health for example are across several locations.
The monthly snap shot of employees will include a number of casuals who may have not worked for a while. In some instances Casuals are not end dated. This is because the business unit does not need to go through the process of requesting additional casual resource at a later date.
Average Salary
The average salary is based on the total salaries for each employee for each division or occupational group divided by the total head count.
As a note a better indication maybe the median salary as the average salary can be distorted either way by outliers or large groups at either end of the range.
There is an inconsistency in the use of cost codes for the same or similar jobs. The risk being that costs are not included in the relevant budget.

Caveats to the Turnover Scenarios

Scenarios – should staff levels decrease where patient safety is compromised, it will have the following impact:
Hospital capacity will decrease to ensure patient safety is met with the staffing levels
Average length of stay will increase due to the lower number of staff available to discharge patients
Elective surgery could be cancelled should the hospital reach capacity, to ensure acute patient demand can be met
Potential increase in agency spend to cover rosters to establishment
Potential breach of Schedule 10
Breach of schedule 10 will drive increase in Section 13.4b payments to SMOs
Increase in overtime required – drive burnout and potentially increase sickness
Reduction in FTE may impact on CDHN ability to delivery high 'churn' – patient flow (alluding to good discharge rates and flow into the wards)

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APPENDIX 1

Appendices: System view and Population Statistics

System view and population statistics

- The Canterbury population was impacted significantly by the Christchurch earthquakes, however, since then has quickly recovered to a trajectory above what was projected prior to the earthquakes

- The Canterbury DHB population appears to be relatively healthy, performing well on a range of risk factors / long term conditions indicators compared to the rest of New Zealand. It is however important to note the changes in population composition since 2009 – demonstrating more diversity in relation to ethnicity, deprivation and health need.

- Data provided by the DHB "*Canterbury 2019 – not Canterbury 2009,"* highlights a 31% growth in both Maori and Pacifica population since 2009 with a 64 % increase in the Asian demographic. Additionally, since 2009, there has been a 8% non-Maori and 23% Maori increase in under 15s.

- From a deprivation perspective, CDHB data suggests that proportionately Canterbury people have the median proportion of community services cards as comparator DHBs. This is below Waikato, Counties Manukau and Southern , but 10% more than Auckland, Waitemata and Capital and Coast DHBs. Children in Canterbury (0-14) are the second most likely to hold a CSC in the country. The median household income is 25% lower than Capital Coast DHB and 2% higher than national average ($90,800).

- Mental Health in the Canterbury region remains an outlier LTC with a negative age standardised prevalence compared to the national trend. We acknowledge findings from Pledger, McDonald and Cumming, (2019) study that looked specifically at SF-12 indicators of health following the 2011 earthquakes and concluded that overall scores on average physical and mental health (for men) and the average mental health scores (women) showed an initial improvement followed by marked decline. Despite the third observation being a subsequent steady improvement in scores aligning to the theory of heroic / honeymoon / disillusionment / reconstruction model of response to a disaster, rates of mental health remains an on-going area of concern in the region.

[1]Pledger, M.J, McDonald, and Cumming, J. SF-12 indicators of health following the 22nd February 2011 Christchurch Earthquakes. NZMJ, 1 Feb 2019, Vol. 132, No. 1489

- When we look at ASH rates these seem to be low, Maori are more healthy in comparison to other DHBs, however, the small Pacific population is vulnerable.

- In terms of ED attendances, Canterbury DHB have had a steady increase in volumes, with non-admitted ED attendance growing at around twice the rate expected of the changing population. In contrast, admitted ED attendances have only been growing in line with the changing population. This indicates that Canterbury's integrated system appears to be containing acute demand to population changes. CDHB analysis indicates that those over the age of 65 in Canterbury are almost 20% less likely to attend ED than comparator DHBs.

- However, without having access to the 24-hour after hours surgery, the ED gap would disappear. In addition the CDHB analysis also demonstrates that older people in Canterbury are less likely to be hospitalized (CDHB has the second lowest rate of medical admissions over 65 and over 75 years), "Canterbury 2019 – not Canterbury 2009."

- Stakeholder conversation and CDHB data suggests that perception of Canterbury health need is less than other places in NZ, however data presented in "Canterbury 2019 – not Canterbury 2009," suggests that the Canterbury population is over represented in Oncology FSAs with 13% on New Zealand FSAs (11.6% of the population and 10.5% of the funding).

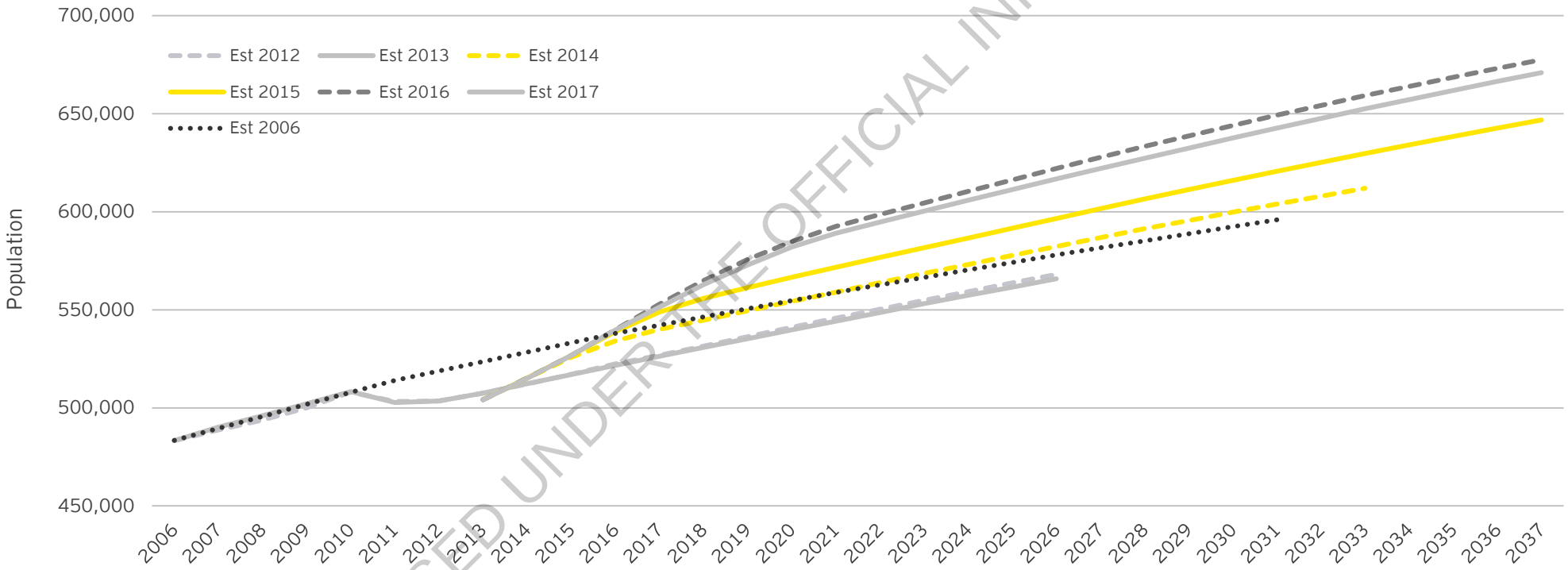
- Refer Appendix B for detailed analysis of system view and population statistics.

Historical population comparison

Although it is often perceived that the earthquakes have changed the population trajectory, the population has been growing at a rate well above what was predicted prior to the earthquakes

Canterbury experienced a 9.3% population growth FY13/14 – 17/18 in comparison to the rest of NZ at 8.1%

Estimated and projected Canterbury DHB population (2006-2037)

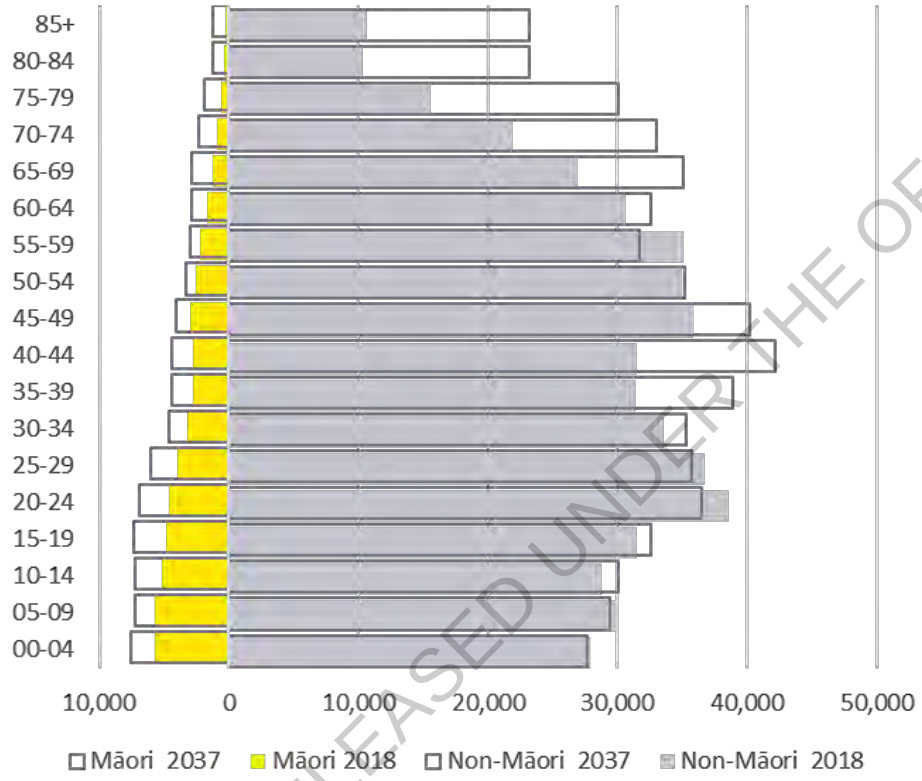


Source: Stats NZ projections for MoH, Stats NZ

Demographics

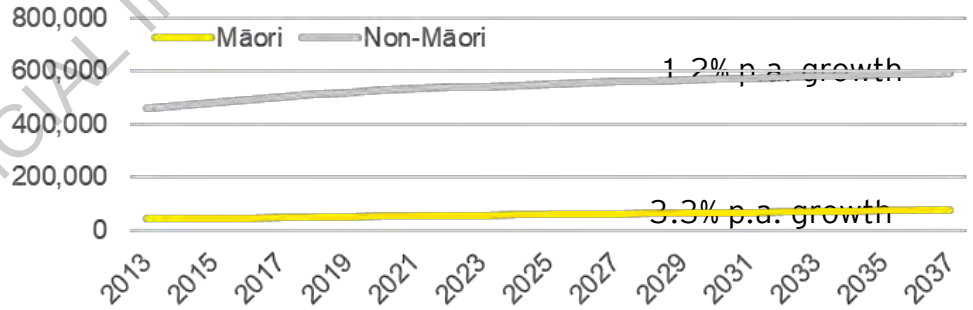
- The Canterbury population is undergoing structural ageing reflecting the national trend. This is more prevalent in the non-Māori population, as the Māori population is growing across all ages. The non-Māori population is experiencing little change at the younger ages, but is increasing significantly in older age groups.
- The non-Māori population is projected to grow at ~1.2% p.a. Growth for the Māori population is stronger at 3.3% p.a.
- All TAs are growing between 1% p.a. and 4% p.a., except Kaikoura District which is projected to decline by 0.1% p.a.

Age pyramid comparing changes between 2018 and 2037



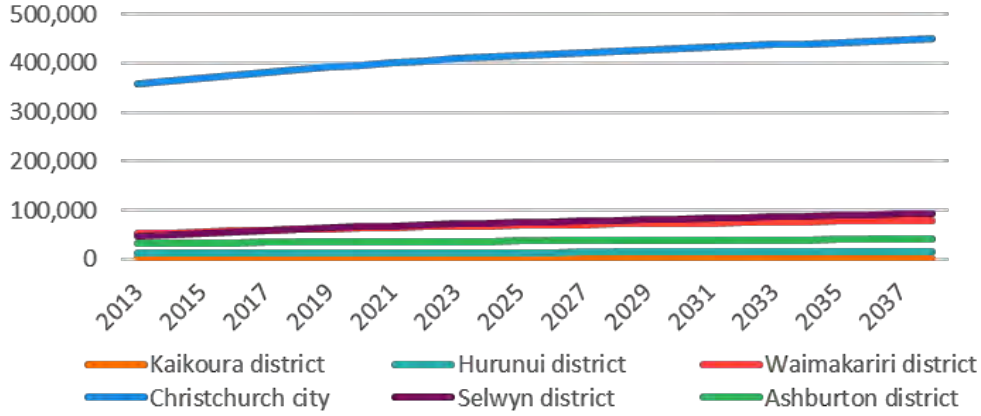
Source: Stats NZ projections for MoH (2017 estimate)

Population by ethnicity (2013-2037)



Source: Stats NZ projections for MoH (2017 estimate)

Population by territorial authority (2013-2037)



Source: Stats NZ

Population health risk factors

The population also appears to be relatively healthy, with prevalence of risk factors / prevalence of long term conditions being significantly below the New Zealand average; we note challenges regarding mood/anxiety disorders.

Additionally, we note limitations due to the nature of the NZ health survey.

1. Population health risk factors

Indicator for adults aged 15 years and over	Age-std prevalence (%) 2014-17		Difference (p-value; yellow = significant difference)
	CDHB	NZ	
Current smoking	15.2	17.2	0.04
Daily smoking	13.2	15.2	0.02
Hazardous drinking*	20.8	21.1	0.87
Physically active	51.9	50.3	0.34
Meets vegetable guidelines	63.1	61.3	0.20
Meets fruit intake guidelines	56.8	53.9	0.02
Adults obesity (BMI 30+)	27.0	30.5	0.01
High blood pressure	10.3	11.8	0.02
High cholesterol	7.1	8.2	0.03

Indicator for children	Age-std prevalence (%) 2014-17		Difference (p-value; yellow= significant difference)
	CDHB	NZ	
Ate fast food 3+ past week	4.6	7.1	0.40
Fizzy drink 3+ past week	13.7	17.4	0.04
Breakfast at home	88.6	85.5	0.05
Meets vegetable guidelines	58.1	53.1	0.04
Meets fruit intake guidelines	78.0	73.6	0.04
TV two hours+	41.8	42.5	0.78
Child obesity	6.9	11.3	0.00

*Hazardous drinking information is only available for single years, so was measured using data from 2016/17

Source: NZ Health Survey 2014-17

2. Prevalence of key long-term conditions

Indicator for adults aged 15 years and over	Age-std prevalence (%) 2014-17		Difference (p-value; yellow = significant difference)
	CDHB	NZ	
Isch. heart disease	3.4	3.2	0.63
Stroke	1.1	1.1	1.00
Diabetes	3.4	4.5	0.01
Asthma (medicated)	11.7	11.2	0.49
Arthritis	11.7	12.6	0.22
Osteoarthritis	7.2	7.2	1.00
Chronic pain	15.6	17.8	0.02
Mood/anxiety disorder	22.4	18.4	0.00
Psychological distress	7.5	7.3	0.78

Key:

Negative trend
Positive trend
Significant difference

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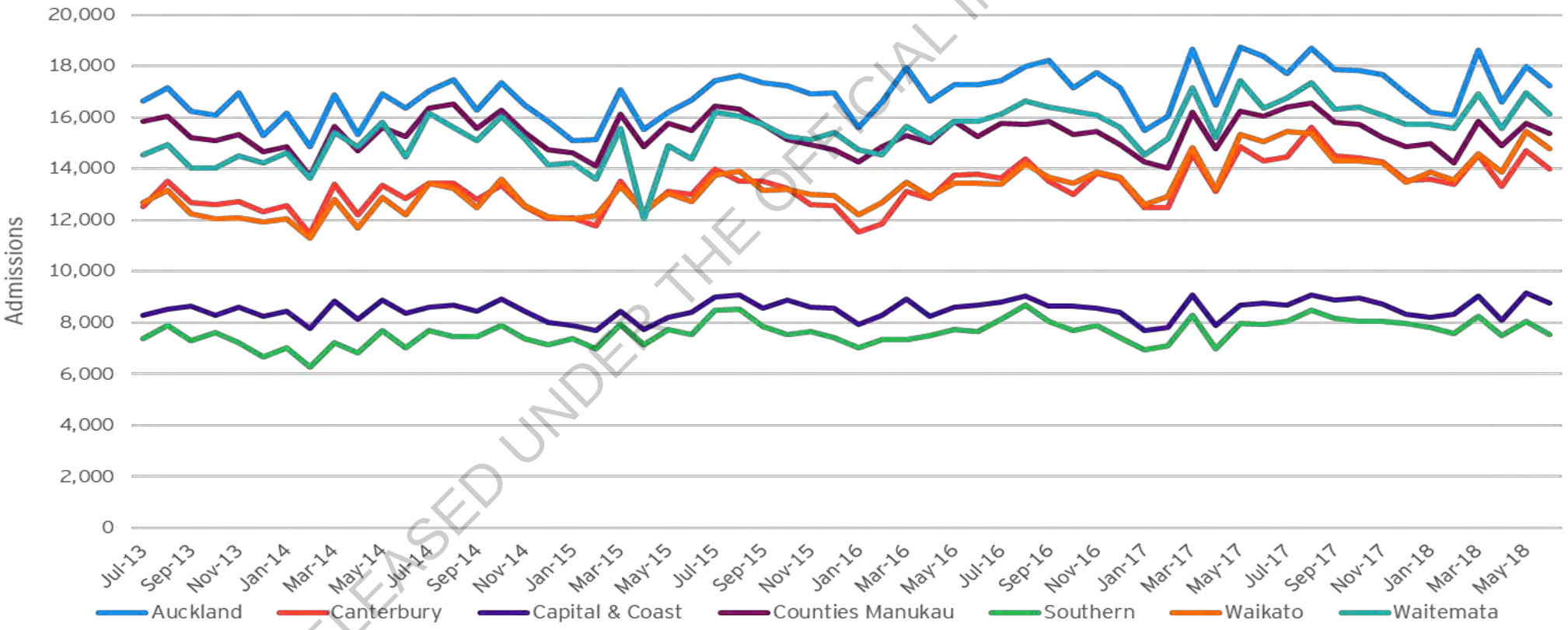
Hospital admissions

- The number of admissions over the past five years have reflected population growth. From FY13 to FY18 Canterbury experienced a ~12% increase in overall admissions, compared to ~10% growth in population
- Canterbury has a similar volume of admissions to Waikato DHB and a lower volume than Auckland, Waitemata and Counties Manukau DHBs.

Total Admissions

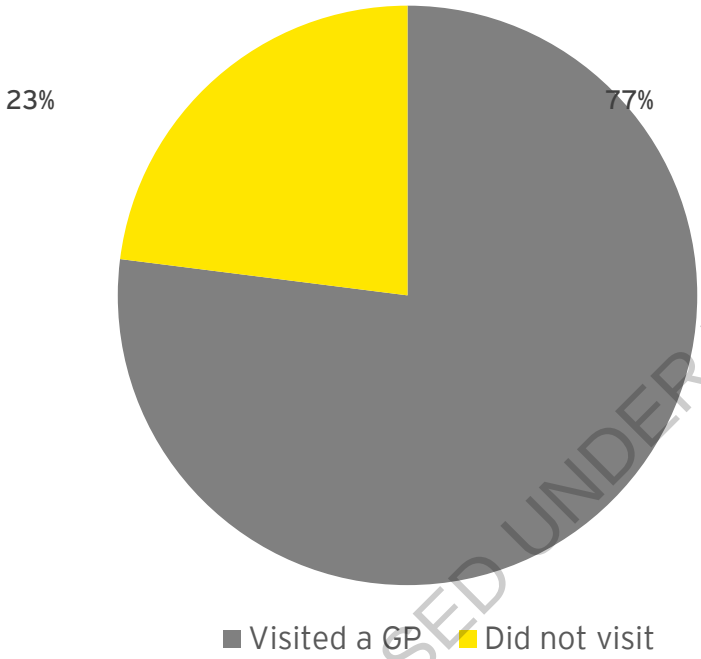


Source: NMDS

Primary health care - Access

80% of Canterbury residents report seeing a GP in the past 12 months. For some of those residents who did not see a GP, barriers to access may have contributed to lack of use of these services. The main barriers to primary health care in Canterbury appears to be cost for GP and after-hours services with 15% and 7%, respectively, of respondents reporting these as a reason barriers to access. In total, 25% experienced unmet need for primary health care for some reason, which is lower than the national average of 29%

Canterbury residents visiting a GP in past 12 months

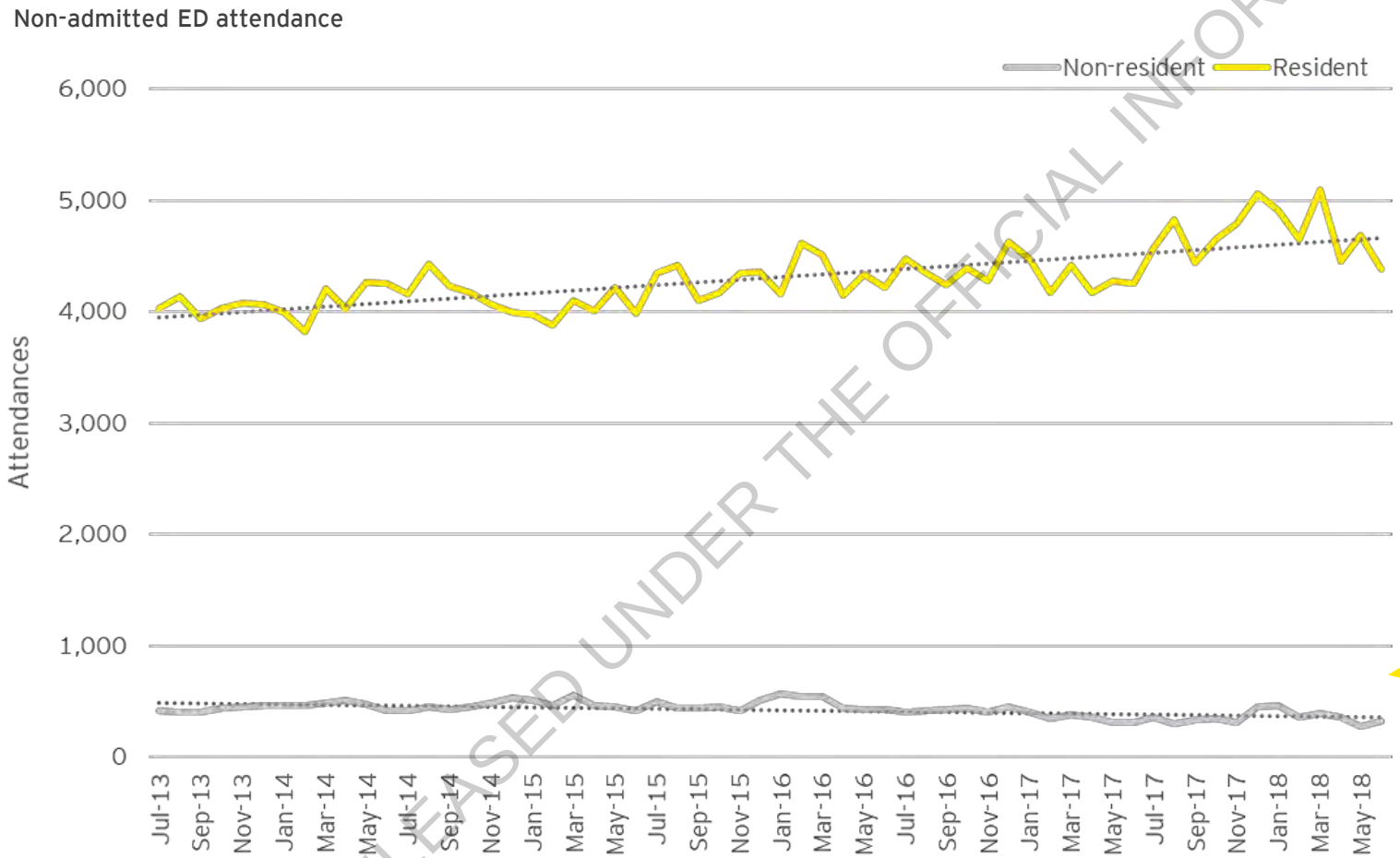


Source: NZ Health Survey 2014/17

Reason (in past 12 months)	Canterbury	NZ	
Unable to get appointment at usual medical centre within 24 hours	14.2%	17.9%	↑
Unmet need for GP services due to cost in the past 12 months	**14.9%**	15.2%	↓
Unmet need for GP services due to lack of transport	3.1%	3.3%	↑
Unmet need for after-hours services due to cost	6.9%	7.0%	↑
Unmet need for after-hours services due to lack of transport	1.6%	1.4%	↓
Unfilled prescription due to cost	6.6%	7.0%	↑
Experienced unmet need for primary health care (any of the above)	24.6%	28.8%	↑

Non-admitted ED attendance trends

- In the last 5 years Canterbury has experienced a 17% increase in non-admitted ED attendances for residents
- Attendances for non-residents are slowly decreasing over time, but relatively constant compared to resident



Non-admitted resident ED attendees increasing by around 3.5% p.a.

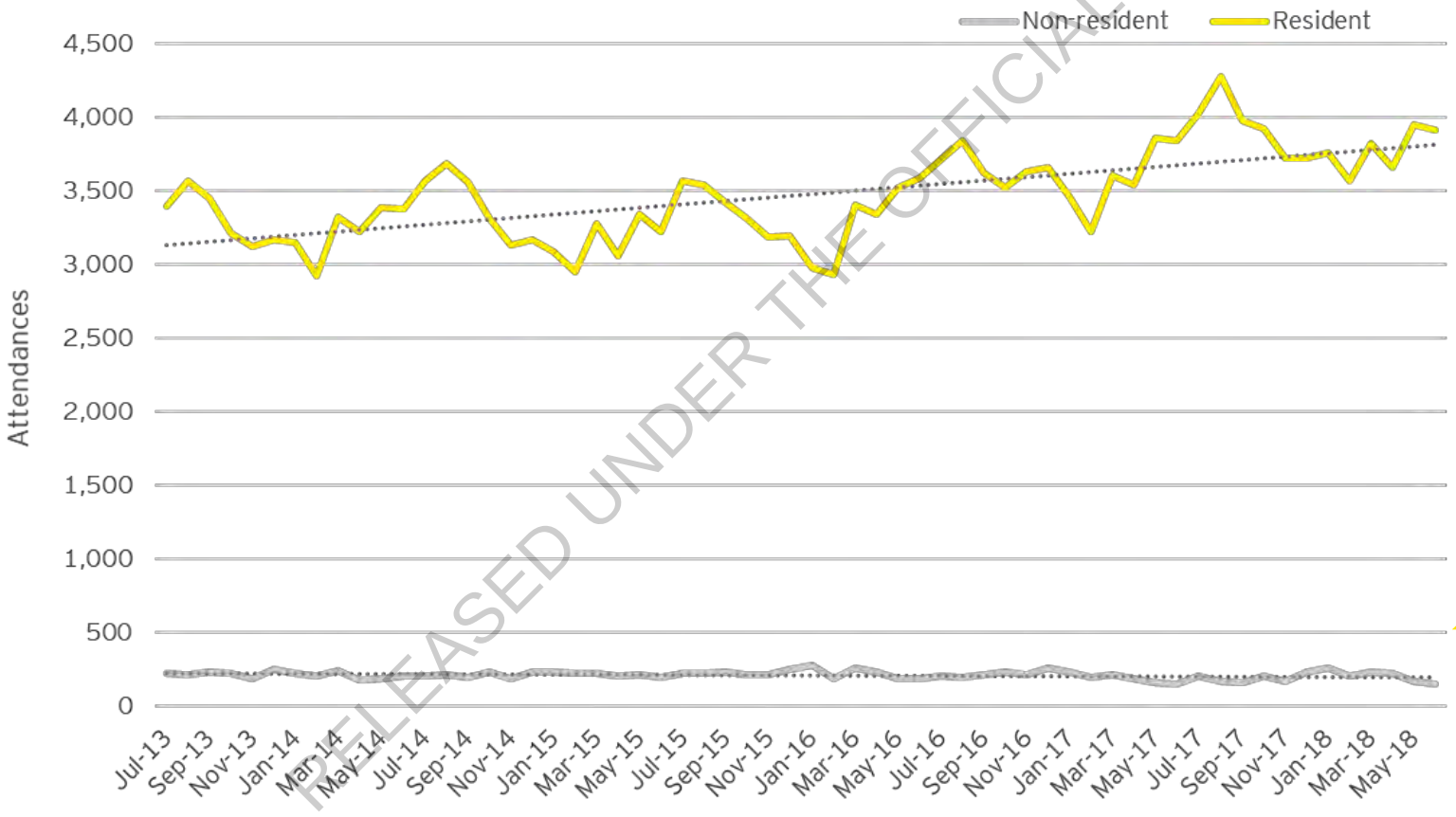
Non-resident-non-admitted ED attendances - around 300 non-resident vs 4,400 resident attendances for month of June 2018

Admitted ED attendance trends

- In the last 5 years, Canterbury has experienced a 10% increase in resident admitted ED attendances, but a 6.7% decrease in non-resident admitted attendances
- The strength of the winter peaks for residents perhaps indicate increasing frailty or comorbidity in the population
- Non-resident attendances have remained fairly constant over time at around 200 attendances per month, with a small peak around summer each year

Admitted ED attendance

Source: NNPAC



Resident admitted ED attendances increasing by around 2.0% p.a.

Admitted-non-resident ED attendances small and slightly declining in comparison, some summer spikes

B

Supplementary Analysis

Summary

- Analysis on Canterbury DHB's performance was produced to inform subsequent operational planning and work programme development. The analysis explores what Canterbury DHB delivers compared to its peers and provides proxies for productivity / efficiency insofar as it is identifiable in current data.
- This data is sourced from National Collections, and includes ratios such as case-weights per FTE, cost per case-weight, bed days per nursing FTE, and nursing FTE cost per bed day. It is important to note that it can be difficult to fairly benchmark any DHB against any of its peers due to the multitude of factors that impact on service delivery, e.g., impacts of differing models of care, cost structures behind different personnel configurations or mix, proximity of hospitals in Northern Region, composition of secondary / tertiary / quaternary services.
- We also note that FTE data was sourced from the Ministry Keylines Summary Reports. Where outsourced medical or nursing FTE was not reported it was imputed via back calculation using each financial year's expenditure on outsourced medical or nursing FTE divided by the most recent ratio of expenditure:FTE.
- Additionally we note that based on National Collections, IDF case-weights account for ~10.6% of Canterbury's service delivery, meaning most of service delivery is for the local population. An estimated 17,000 case-weights are attributable to Regional and National services – distributed over a range of specialties, e.g., cardiac surgery, renal transplantation, neonatal intensive care.
- From an efficiency perspective we note on a per case-weight basis, medical FTE (provider and outsourced) benchmark well, while nursing appears on the lower side, although not significantly different from peers. As a composite (i.e., medical and nursing cost per case-weight) the DHB appears to benchmark well; although personnel costs were disproportionately affected (compared to other DHBs) between FY17 and FY18 as a result of MECA changes. In this regard it is important to note that Canterbury DHB more generally tends to run an increased nursing personnel base, with a smaller complement of medical personnel in comparison to peer DHBs.
- Additional observations include:
  - There are suggestions that the relative cost structure especially of the provider arm is elevated compared to peer DHBs – care is delivered a higher personnel cost
  - There are high costs associated with outsourced personnel and services
  - There is potential for marginal gains across traditional efficiency / productivity metrics, e.g., bed days, DOSA rates, sameday elective surgery
  - There are some areas where productivity could potentially be improved, e.g., case weighted discharges per FTE, personnel cost per case-weighted discharge

Difference in case-weights

It was raised by CDHB that there are around 40,000 missing case-weights which should be considered as part of the benchmarking as these are not present in the National Collections, these include:

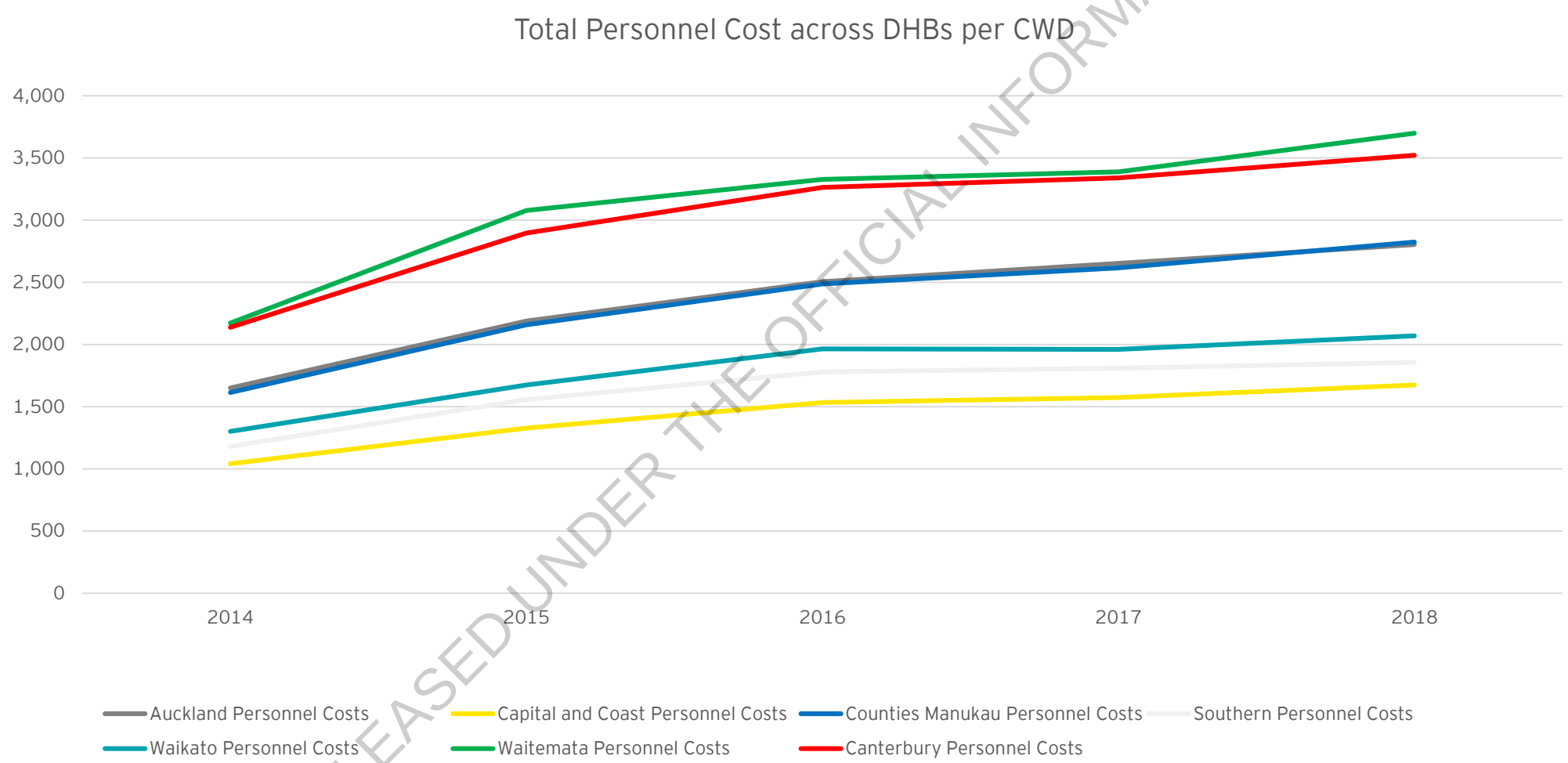
- Acute avoidance
- ED 3-hour admissions
- Outplaced
- Outsourced
- Community
- Outpatient procedures that are transferred to inpatient.

After consideration between CDHB Planning and Funding and EY Data and Analytics teams the following commentary was agreed:

- For ED 3-hour admissions it is unclear if there is a significant difference in all peer DHBs in terms of recording. However, we have been advised of some technically admitted patients receiving a case-weight which contributes to that DHB.
- Subsidised procedures should be queried as it is unclear whether these are done privately with a subsidy, by DHB personnel in a private clinic, or by a GP.
- Outplaced and outsourced should be included for medical where theatre sessions are purchased, but would need validation on whether nursing personnel are supplied by the facility of service or by the DHB.
- Outpatient events with a procedure would require us to assume that all other DHBs deliver as inpatient events which is likely untenable.

Personnel cost per CWD – all staff

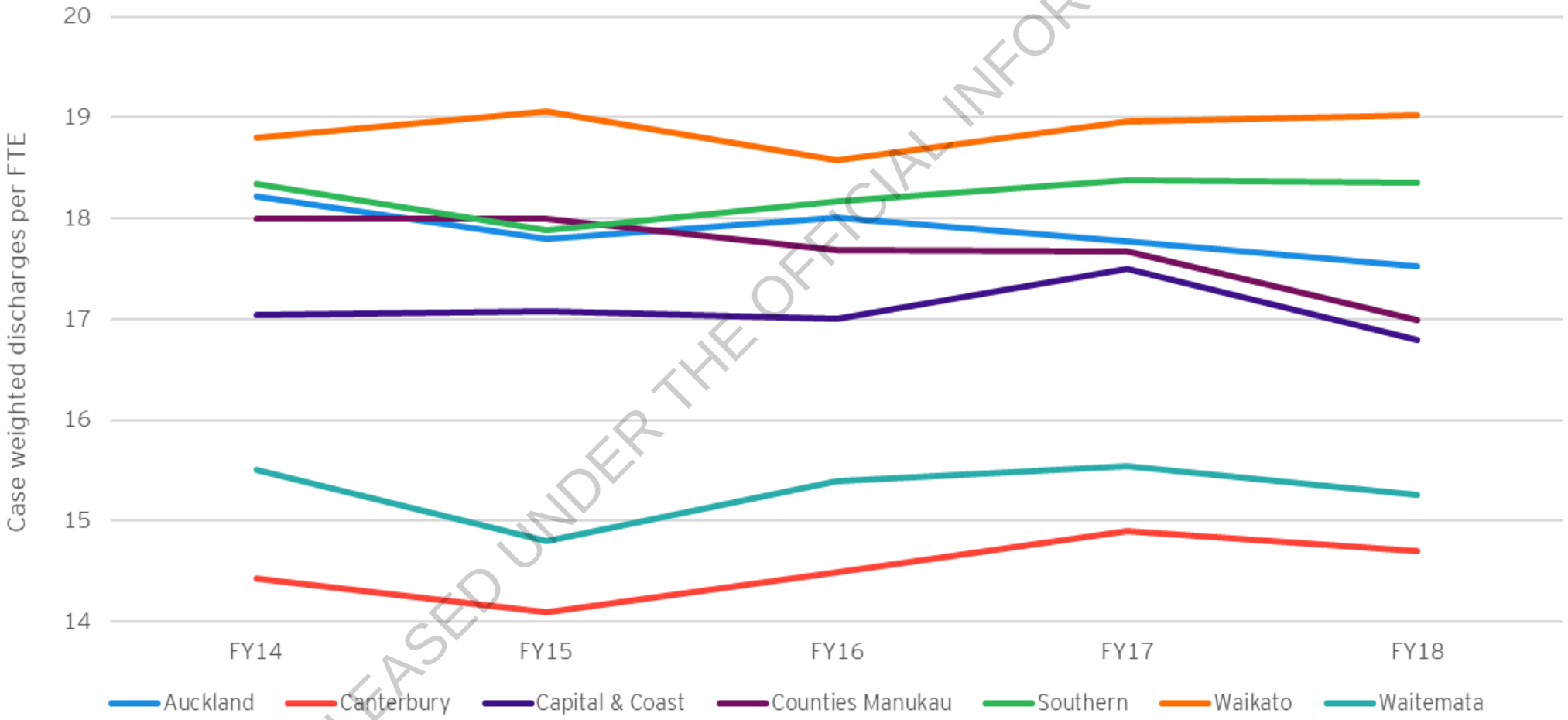
When the Case-weighted discharge per FTE translated into personnel cost per case-weighted discharge, the Canterbury personnel cost is significantly higher than all peers except Waitemata DHB, and almost twice that of Capital and Coast / Waikato / Southern DHBs



Source: NMDS, CDHB, EY analysis

Case-weighted discharges per FTE (total)

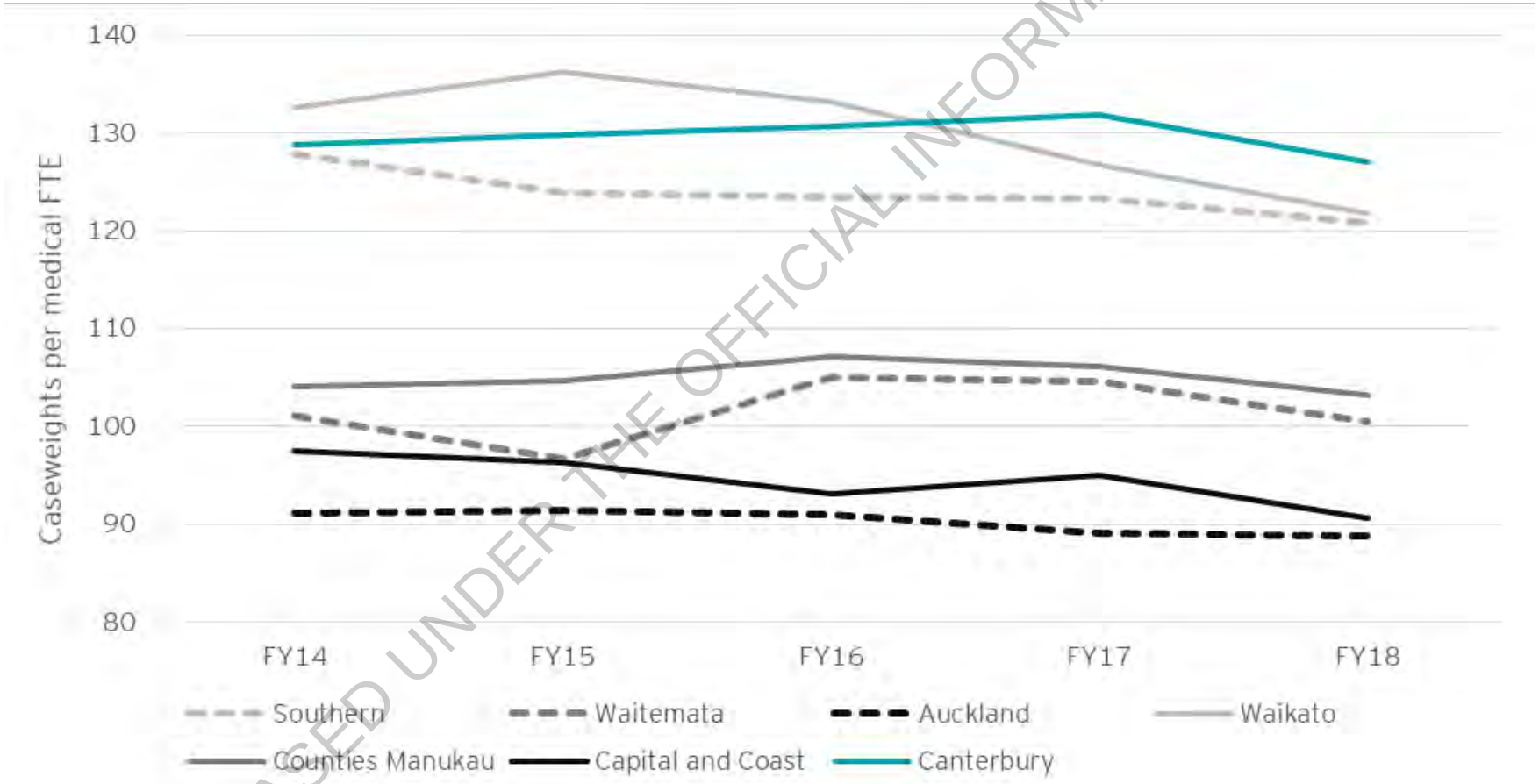
Further to the increased personnel cost, when case-weighted discharges are explored on a per FTE basis CDHB has the lowest ratio of peer DHBs; this indicates that Canterbury provides care for a lower case load complexity on a per FTE basis or greater FTEs for production levels.



Source: NMDS, CDHB, EY analysis

Case-weights per medical FTE (FY14-18)

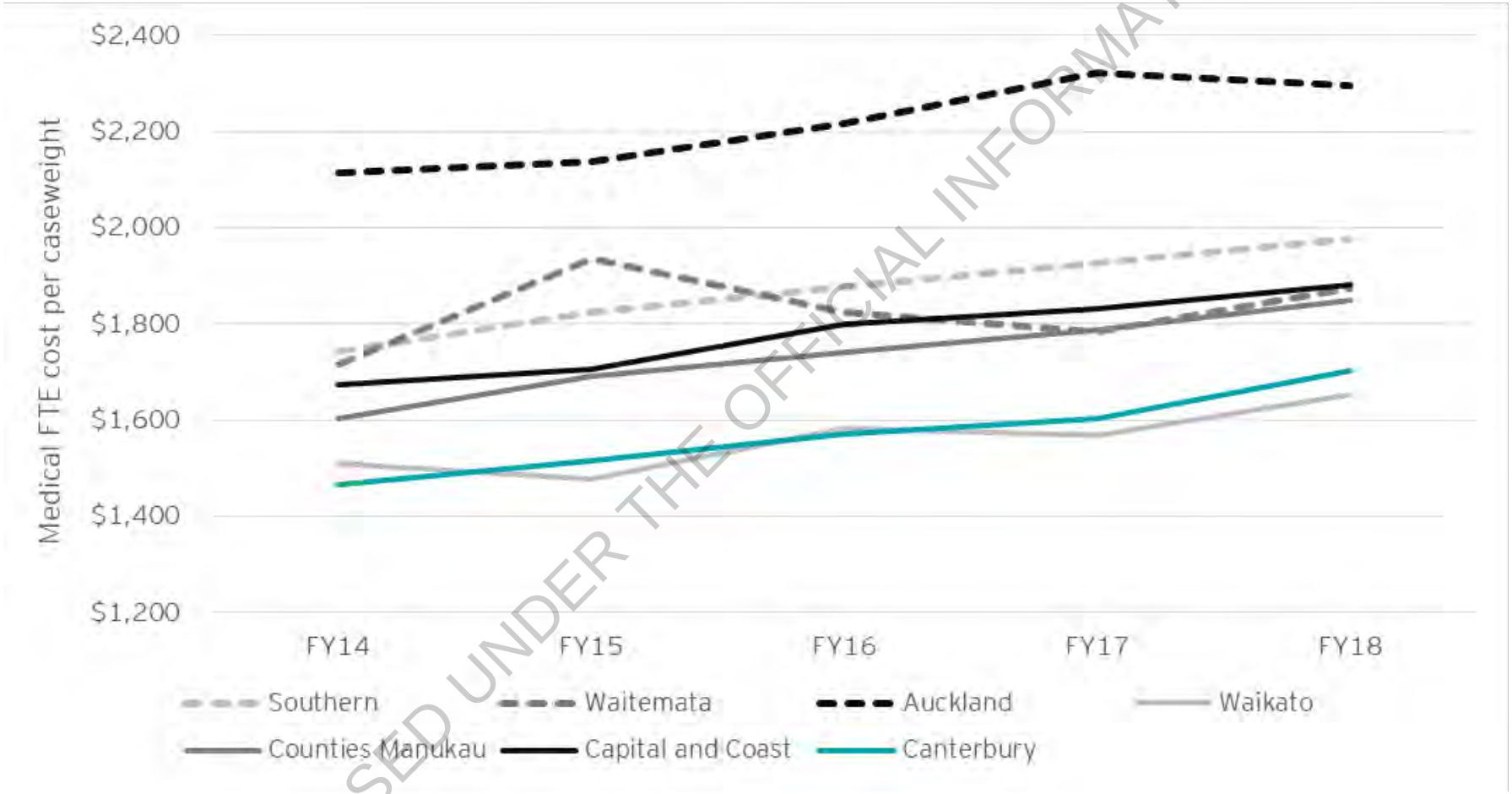
- Given the distribution of case-weights over specialty, service level, by DHB of service and the local / IDF mix, the following graph provides the case-weights per medical FTE inclusive of both provider and outsourced medical FTE



Source: NMDS, MoH Keylines Summary Reports

Medical cost per case-weight (FY14-18)

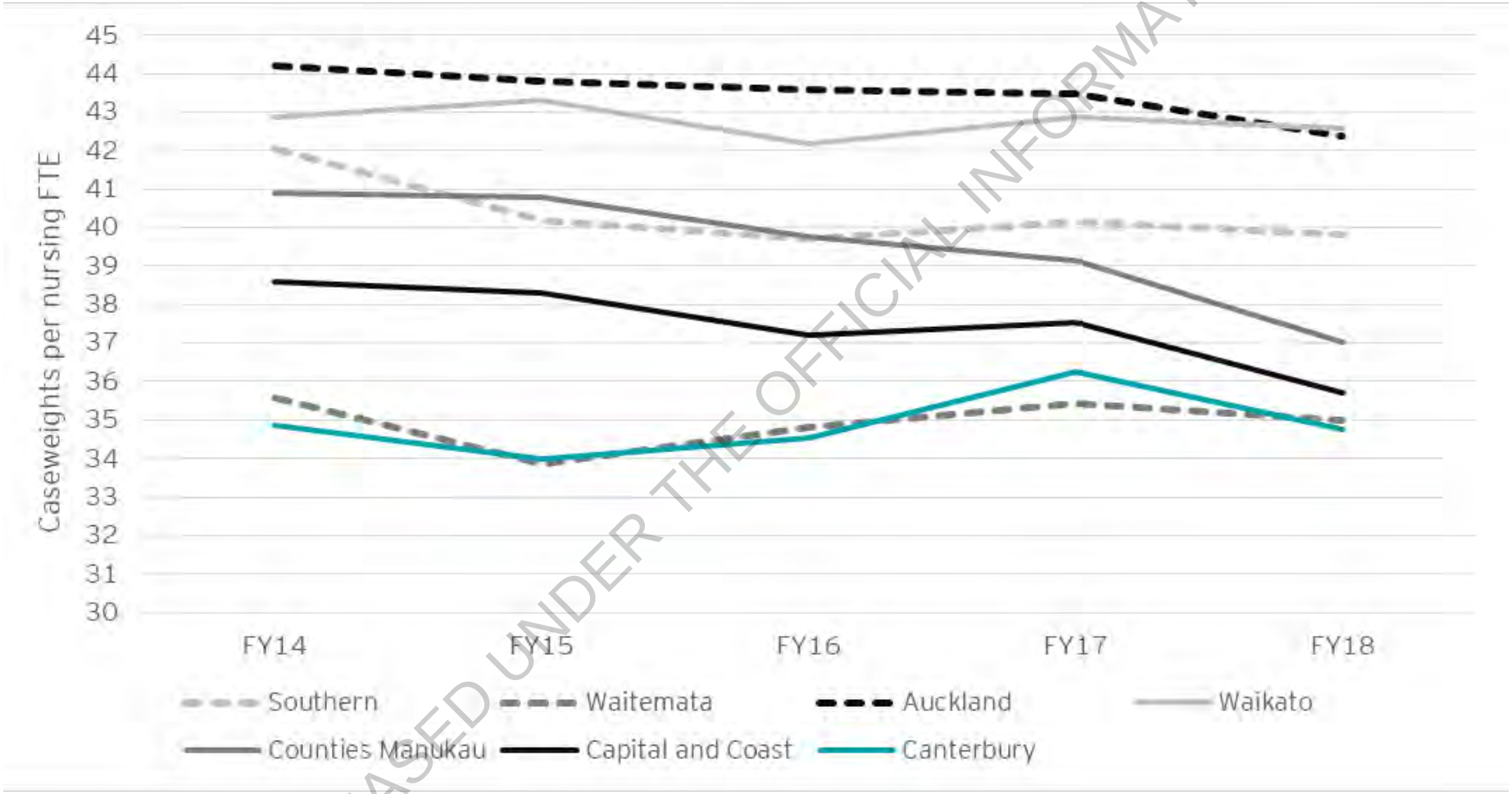
- Similar to the inclusion of provider and outsourced medical FTE, here both provider and outsourced medical costs are included in the division



Source: NMDS, MoH Keylines Summary Reports

Case-weights per nursing FTE (FY14-18)

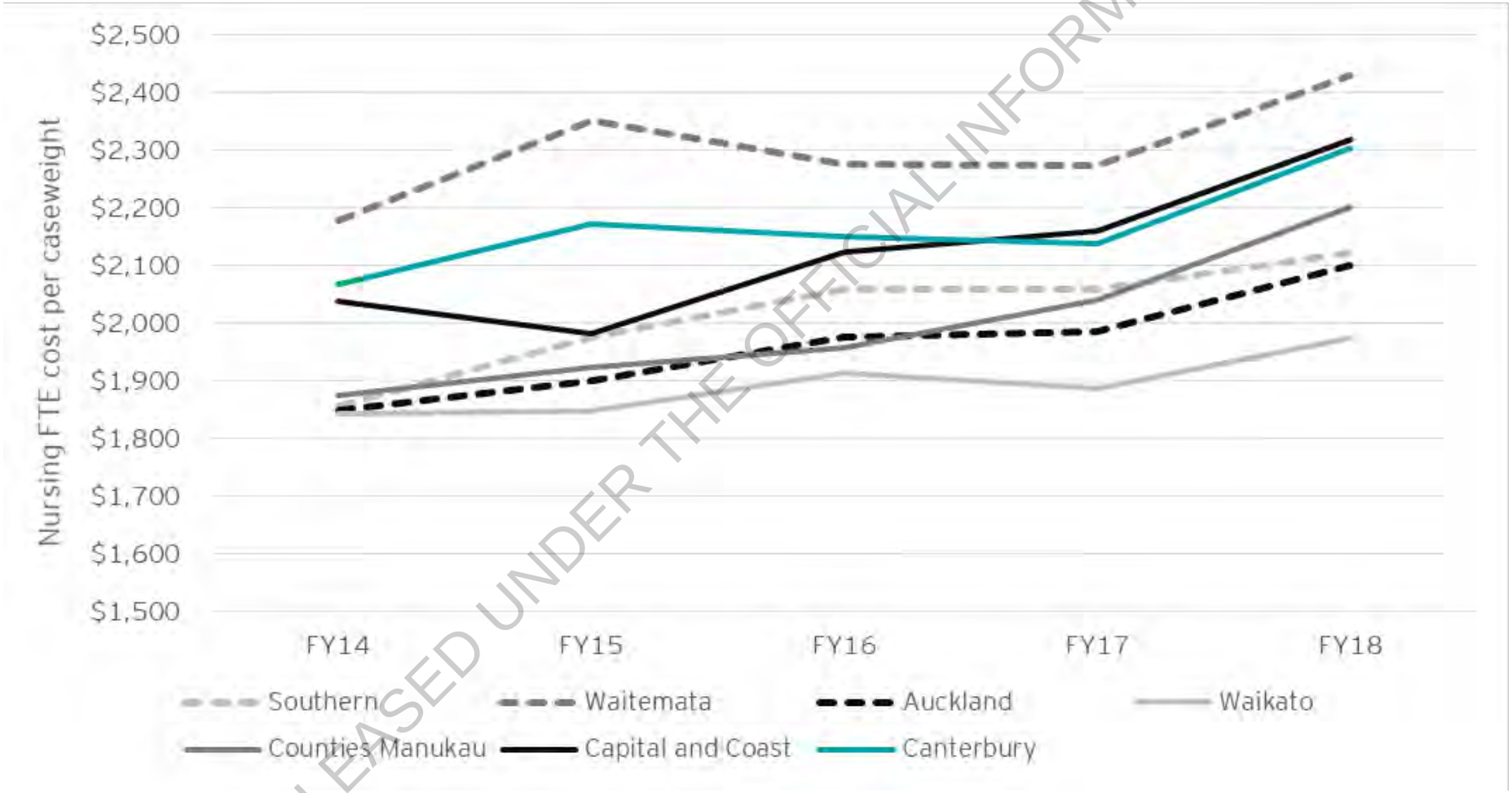
- Similar to the case-weights per medical FTE, here nursing FTE is inclusive of provider and outsourced nursing FTE



Source: NMDS, MoH Keylines Summary Reports

Nursing cost per case-weight (FY14-18)

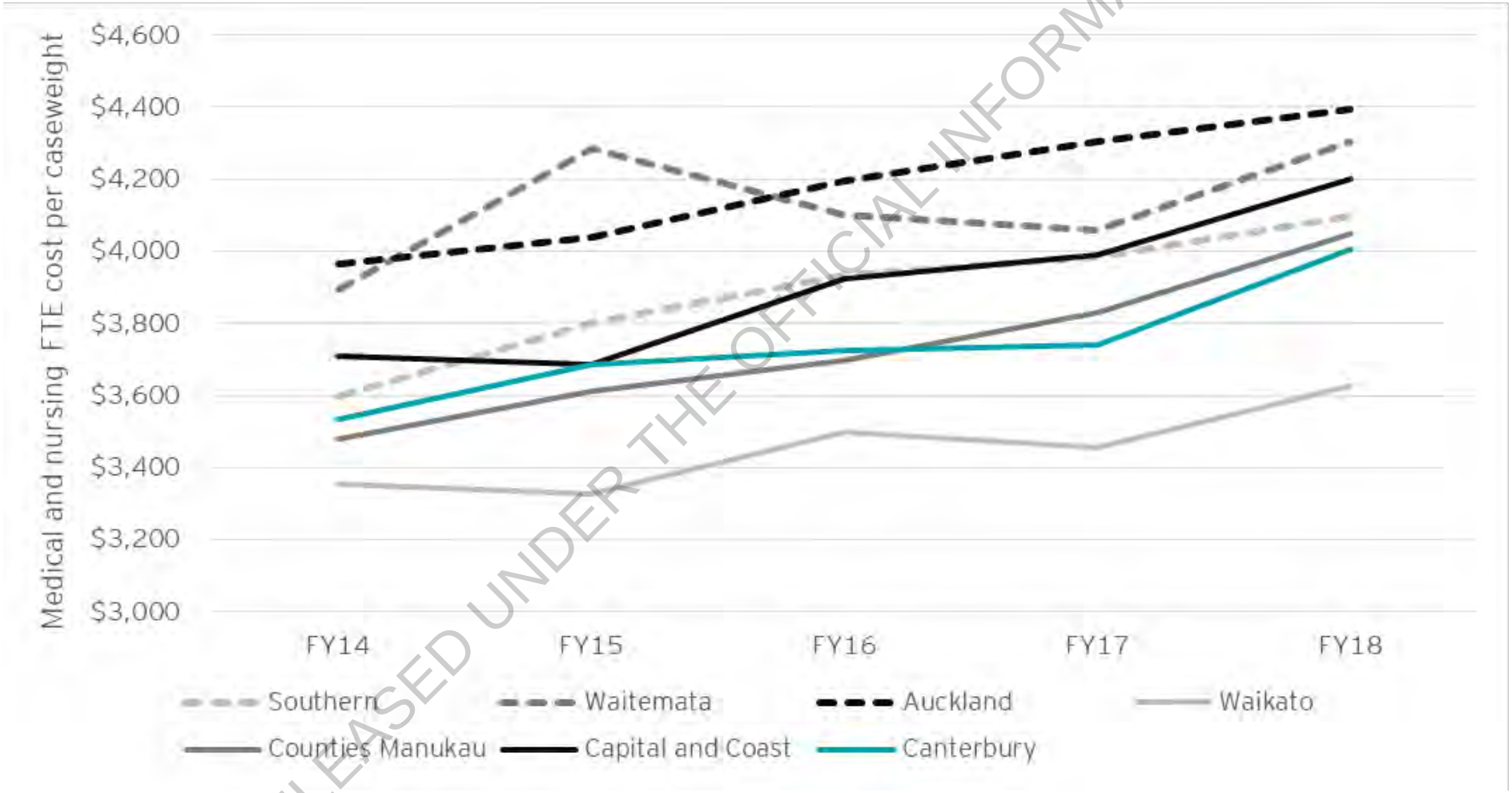
- The following graph presents the nursing FTE cost per case-weight as per the methodology used for medical personnel



Source: NMDS, MoH Keylines Summary Reports

Med./Nursing cost per case-weight (FY14-18)

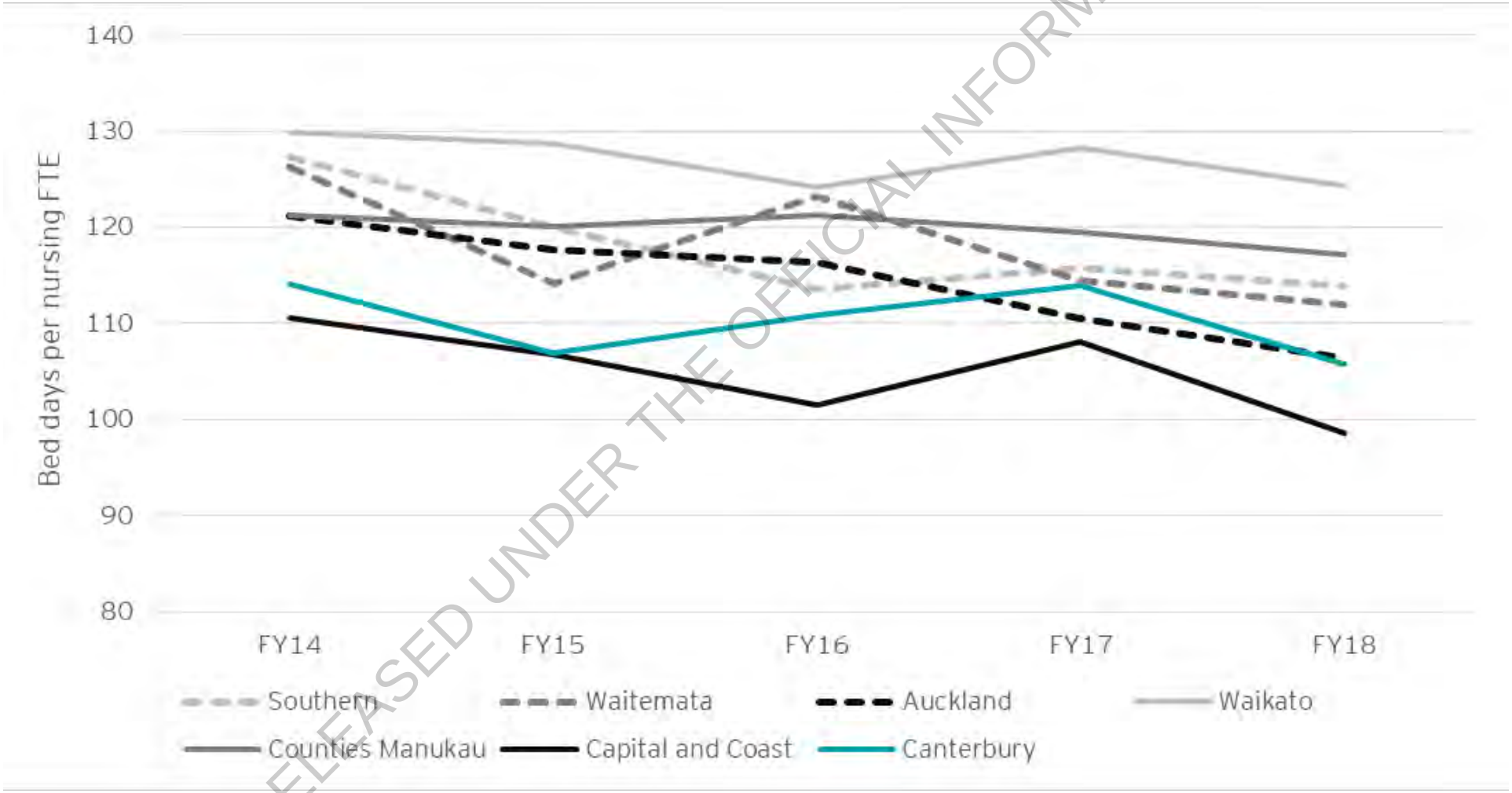
- The following graph presents the medical and nursing FTE cost per case-weight as per the methodology used for medical and nursing personnel



Source: NMDS, MoH Keylines Summary Reports

Bed days per nursing FTE (FY14-18)

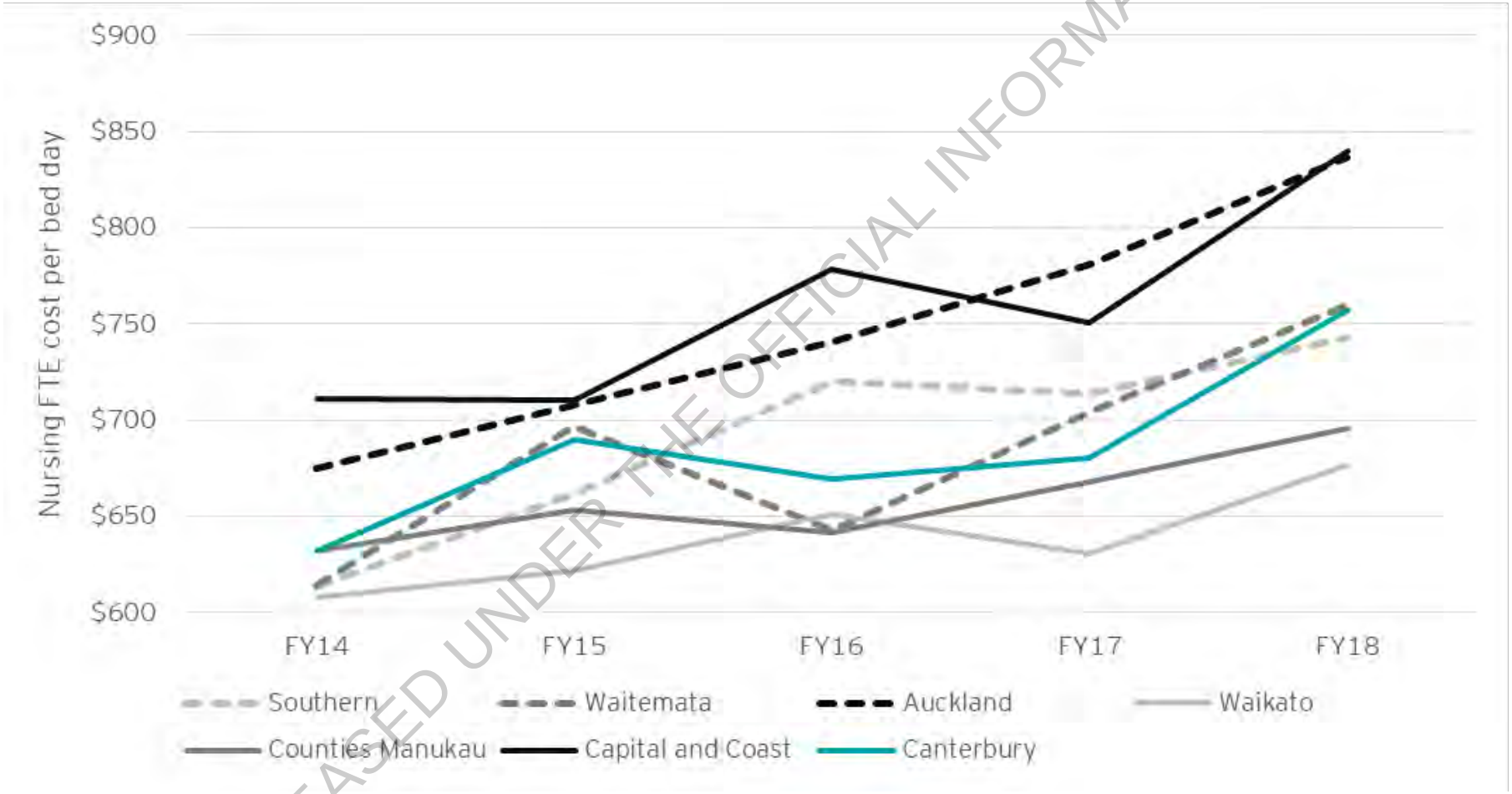
- When shifted to a bed days view rather than case-weights, Canterbury appears to be much closer in ratio to Auckland



Source: NMDS, MoH Keylines Summary Reports

Nursing cost per bed day (FY14-18)

- In terms of nursing cost per bed day, Canterbury appears to be relatively on par with peers



Source: NMDS, MoH Keylines Summary Reports

Appendices to Supplementary Analysis

Total Caseload by DHB of service

The following table provides the case-weights by DHB of service at a specialty level based on patient discharges in FY18
This includes all national and regional service volumes and so should be discounted before comparison

	FY18 IDF case-weights (DHB of service)							FY18 IDF case-weights as % of all case-weights						
Specialty	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern
Medical	4,649	1,195	27,569	2,419	5,664	8,058	678	11.1%	2.6%	47.2%	6.9%	14.1%	30.5%	3.1%
Surgical	7,842	1,120	40,291	7,756	10,172	14,914	1,347	14.2%	3.3%	53.9%	17.4%	19.7%	39.9%	4.3%
AT&R	113	72	411	801	128	255	69	1.1%	1.2%	8.9%	11.2%	1.5%	6.9%	1.7%
Mental Health	920	3,062	1,755	436	815	1,303	138	8.6%	38.5%	23.6%	8.6%	15.5%	21.6%	3.4%
Maternity / neonatal	483	807	5,329	1,107	1,419	2,781	147	3.4%	8.3%	42.0%	5.8%	15.5%	28.2%	2.4%
Total	14,008	6,255	75,356	12,520	18,198	27,311	2,378	10.6%	6.1%	47.7%	11.3%	15.8%	32.7%	3.5%

	FY18 Local case-weights (DHB of service)						
Medical	37,245	44,193	30,813	32,700	34,620	18,393	21,186
Surgical	47,274	32,698	34,414	36,924	41,526	22,426	29,778
AT&R	10,412	5,971	4,209	6,346	8,467	3,452	4,062
Mental Health	9,761	4,884	5,677	4,652	4,457	4,722	3,955
Maternity / neonatal	13,794	8,971	7,355	18,064	7,713	7,089	5,975
Total	118,486	96,716	82,468	98,686	96,782	56,082	64,955

Source: NMDS

National/Regional Caseload by DHB of service

National and Regional services were identified insofar as is reasonable based on SRG, DRG and age (for pediatric services)

	FY18 case-weights (DHB of service)						
Service level and SRG	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern
National	552	5	7,801	24	102	238	88
Cardiothoracic	394	5	3,287	19	102	130	56
High cost	158		4,514	5		108	33
Tertiary	16,603	4,194	35,235	6,794	18,416	17,694	7,413
Burns	9	1		636	99	5	5
Cardiology	1,296	1,091	2,245	441	1,622	1,616	449
Cardiothoracic	3,518	139	9,812	147	6,298	5,311	2,264
ENT	192	58	218	75	157	54	56
Haematology	275		1,580		206	497	
High cost	4,529	869	8,476	1,412	2,434	2,709	1,767
Neonatal - complex	2,200	1,107	3,403	2,222	2,615	2,652	809
Neurosurgery	2,126	234	6,216	340	2,651	3,031	911
Trauma	1,366	696	1,450	1,098	1,149	664	575
Vascular surgery	1,093		1,835	423	1,186	1,155	577
Total	17,155	4,199	43,036	6,818	18,518	17,932	7,501

Notes: Peer review of service level imputation is underway	National volumes are attributable to pediatric cardiothoracic cases and renal transplant w/ pancreas transplant	National volumes are repatriations from Auckland	National volumes from a wide range of national services	Burns/plastics DRGs/SRGs were not specific enough to identify national service cases	National volumes are attributable to pediatric cardiothoracic cases	National volumes are attributable to pediatric cardiothoracic, renal transplant w/ pancreas transplant and neurosurgery cases	National volumes are attributable to pediatric cardiothoracic and ECMO

Source: NMDS

Secondary Caseload by DHB of service

After removal of national and regional service volumes, the following caseload table for FY18 is produced. The proportion of IDFs decrease as a result, with Auckland and Capital and Coast affected the most, although they retain significant IDF inflows from surrounding DHBs

	FY18 IDF case-weights (DHB of service)							FY18 IDF case-weights as % of secondary case-weights						
Specialty	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern
Medical	2,974	1,100	16,019	2,185	4,451	5,786	586	8.4%	2.6%	37.3%	6.6%	12.2%	25.7%	2.9%
Surgical	5,402	1,107	21,508	6,649	4,444	6,298	990	11.6%	3.3%	42.9%	15.8%	11.2%	24.2%	3.8%
AT&R	113	72	411	797	128	255	69	1.1%	1.2%	8.9%	11.2%	1.5%	6.9%	1.7%
Mental Health	920	3,062	1,755	436	815	1,303	138	8.6%	38.5%	23.6%	8.6%	15.5%	21.6%	3.4%
Maternity / neonatal	217	702	3,337	943	426	982	45	1.8%	8.1%	34.4%	5.6%	6.4%	13.6%	0.9%
Total	9,626	6,042	43,030	11,011	10,263	14,624	1,828	8.3%	6.1%	37.5%	10.5%	10.6%	22.3%	3.1%

	FY18 Local case-weights (DHB of service)						
Medical	32,586	41,608	26,888	30,926	31,954	16,689	19,642
Surgical	41,056	32,289	28,626	35,446	35,089	19,722	25,080
AT&R	10,412	5,968	4,209	6,305	8,464	3,440	4,058
Mental Health	9,761	4,881	5,677	4,651	4,454	4,722	3,955
Maternity / neonatal	11,898	7,985	6,359	16,049	6,237	6,264	5,270
Total	105,713	92,730	71,758	93,377	86,199	50,837	58,004

Source: NMDS

Total bed days by DHB of service

This and the following two slides provide the same view with bed days instead of case-weights

	FY18 IDF bed days (DHB of service)							FY18 IDF bed days as % of all bed days						
Specialty	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern
Medical	8,175	2,564	52,269	6,460	11,361	13,882	1,350	7.8%	2.0%	37.1%	5.4%	10.7%	22.4%	2.3%
Surgical	18,529	2,586	64,589	15,712	17,558	21,492	2,323	18.2%	3.9%	49.2%	16.1%	18.2%	34.9%	4.0%
AT&R	838	284	3,201	4,963	892	1,574	519	1.1%	0.6%	9.3%	8.4%	1.3%	5.7%	1.7%
Mental Health	8,065	25,605	9,821	2,019	4,540	6,921	765	10.8%	49.8%	21.9%	8.2%	14.4%	14.7%	3.2%
Maternity / neonatal	1,713	3,044	17,718	3,136	5,225	9,804	463	3.9%	8.4%	39.8%	6.1%	16.4%	30.4%	2.2%
Total	37,320	34,083	147,598	32,290	39,576	53,673	5,420	9.3%	10.4%	37.3%	9.2%	11.8%	23.3%	2.8%

FY18 Local bed days (DHB of service)							
Medical	97,140	127,308	88,732	113,089	94,574	48,061	57,612
Surgical	83,220	64,290	66,746	81,972	78,688	40,134	55,986
AT&R	76,426	44,554	31,315	54,043	69,103	25,809	29,155
Mental Health	66,620	25,814	35,010	22,608	27,073	40,125	23,457
Maternity / neonatal	42,208	33,221	26,792	47,891	26,614	22,439	20,888
Total	365,614	295,187	248,595	319,603	296,052	176,568	187,098

Source: NMDS

National/Regional bed days by DHB of service

	FY18 bed days (DHB of service)						
Service level and SRG	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern
National	605	6	8,121	12	179	334	112
Cardiothoracic	480	6	4,167	11	179	202	104
High cost	125		3,954	1		132	8
Tertiary	29,148	9,664	59,064	16,812	33,219	29,123	13,931
Burns	28	0		816	128	1	21
Cardiology	1,198	1,525	2,112	1,023	1,939	1,368	510
Cardiothoracic	5,324	242	13,867	268	9,761	7,318	3,855
ENT	356	74	395	99	223	128	77
Haematology	588		3,469		651	1,161	
High cost	6,158	1,329	12,661	2,262	3,405	3,481	2,632
Neonatal - complex	9,130	4,014	11,325	8,377	9,506	9,083	3,006
Neurosurgery	3,283	775	10,089	981	4,144	4,167	2,083
Trauma	2,202	1,705	2,864	2,385	2,198	1,258	1,150
Vascular surgery	881		2,282	601	1,264	1,158	597
Total	29,753	9,670	67,185	16,824	33,398	29,457	14,043

Notes: Peer review of service level imputation is underway	National volumes are attributable to pediatric cardiothoracic cases and renal transplant w/ pancreas transplant	National volumes are repatriations from Auckland	National volumes from a wide range of national services	Burns/plastics DRGs/SRGs were not specific enough to identify national service cases	National volumes are attributable to pediatric cardiothoracic cases	National volumes are attributable to pediatric cardiothoracic, renal transplant w/ pancreas transplant and neurosurgery cases	National volumes are attributable to pediatric cardiothoracic and ECMO

Source: NMDS

Secondary bed days by DHB of service

	FY18 IDF bed days (DHB of service)							FY18 IDF bed days as % of secondary bed days						
Specialty	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital and Coast	Southern
Medical	6,326	2,475	36,279	6,257	9,741	11,230	1,209	6.5%	2.0%	30.7%	5.4%	9.7%	19.8%	2.1%
Surgical	15,126	2,566	38,849	13,930	9,705	10,633	1,789	17.0%	3.9%	40.4%	15.0%	12.4%	22.9%	3.6%
AT&R	838	284	3,201	4,960	892	1,574	519	1.1%	0.6%	9.3%	8.4%	1.3%	5.8%	1.8%
Mental Health	8,065	25,605	9,821	2,019	4,540	6,921	765	10.8%	49.8%	21.9%	8.2%	14.4%	14.7%	3.2%
Maternity / neonatal	765	2,647	11,933	2,588	1,947	4,099	189	2.2%	8.2%	33.8%	6.1%	8.6%	17.6%	1.0%
Total	31,120	33,577	100,083	29,754	26,825	34,457	4,471	8.3%	10.5%	30.4%	8.9%	8.9%	17.2%	2.5%

	FY18 Local bed days (DHB of service)						
Medical	91,068	122,651	82,006	109,667	90,361	45,514	55,384
Surgical	73,843	63,391	57,274	79,017	68,278	35,735	47,863
AT&R	76,426	44,549	31,315	53,896	69,084	25,740	29,136
Mental Health	66,620	25,811	35,010	22,608	27,072	40,125	23,457
Maternity / neonatal	34,104	29,621	23,320	40,127	20,610	19,213	18,164
Total	342,061	286,023	228,925	305,315	275,405	166,327	174,004

Source: NMDS

National / Regional mapping

- National services:
  - Liver, heart, lung, pancreas transplants DRGs
  - LVADs DRG
  - ECMO DRGs
  - Paediatric cardiothoracic surgery via paediatric age and cardiothoracic SRG
- Regional / tertiary services:
  - High cost SRG
  - Cardiothoracic SRG
  - Neurosurgery SRG
  - Major trauma DRGs (head, chest, multi-major)
  - Renal transplant DRG
  - Head and neck procedure DRGs
  - Neonatal complex SRG
  - Severe / full thickness burns DRGs
- Local / secondary services includes all that remains

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APPENDIX 1

Canterbury DHB Operational plan
Service analytics

May 2019

The better the question. The better the answer.
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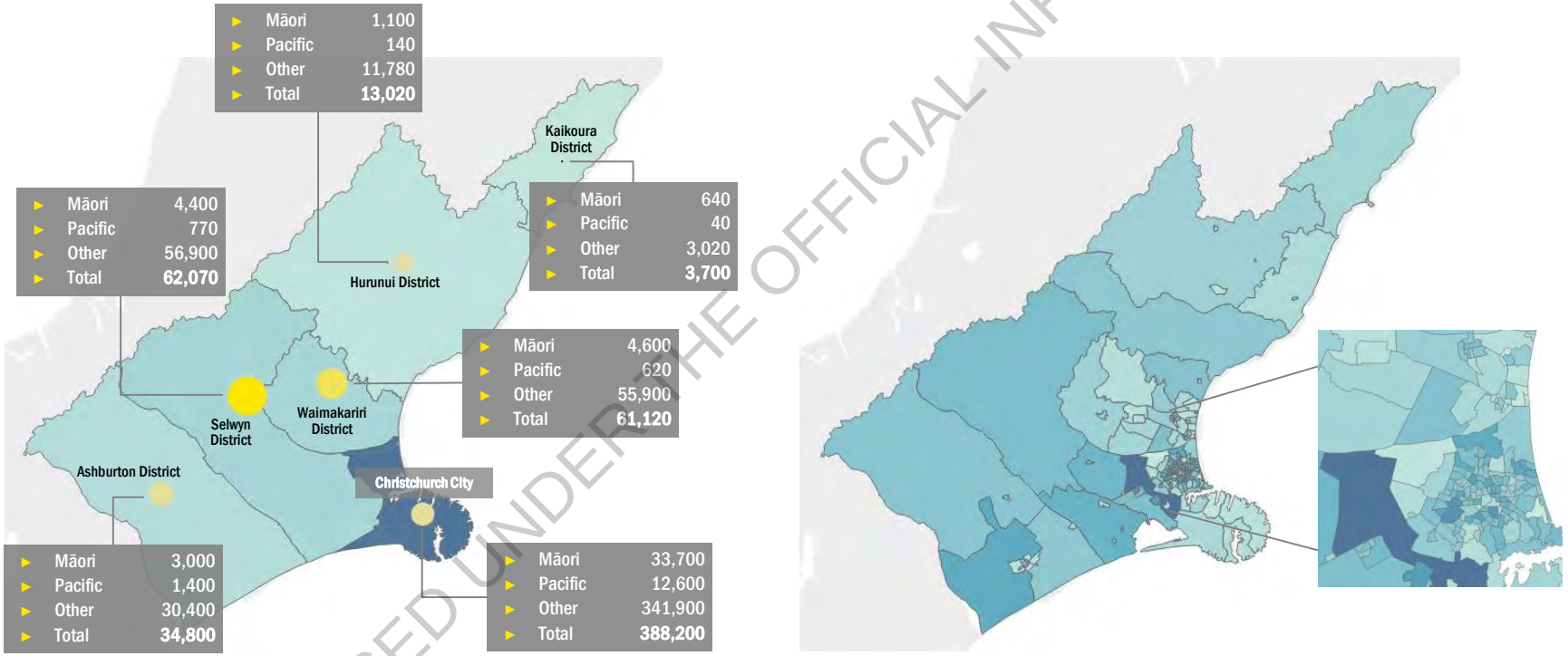
Population health needs update

Population

- In 2018 there was an estimated 563,000 people in the Canterbury DHB area. 18% were children aged 0-14, 16% aged 65+, and 17% Maori, 1% Pacific.
- Christchurch City is projected to have the largest absolute growth by 2038, with the population increasing by ~62,000, however Selwyn District is the fastest growing, projected to increase by 50% over the next 20 years.

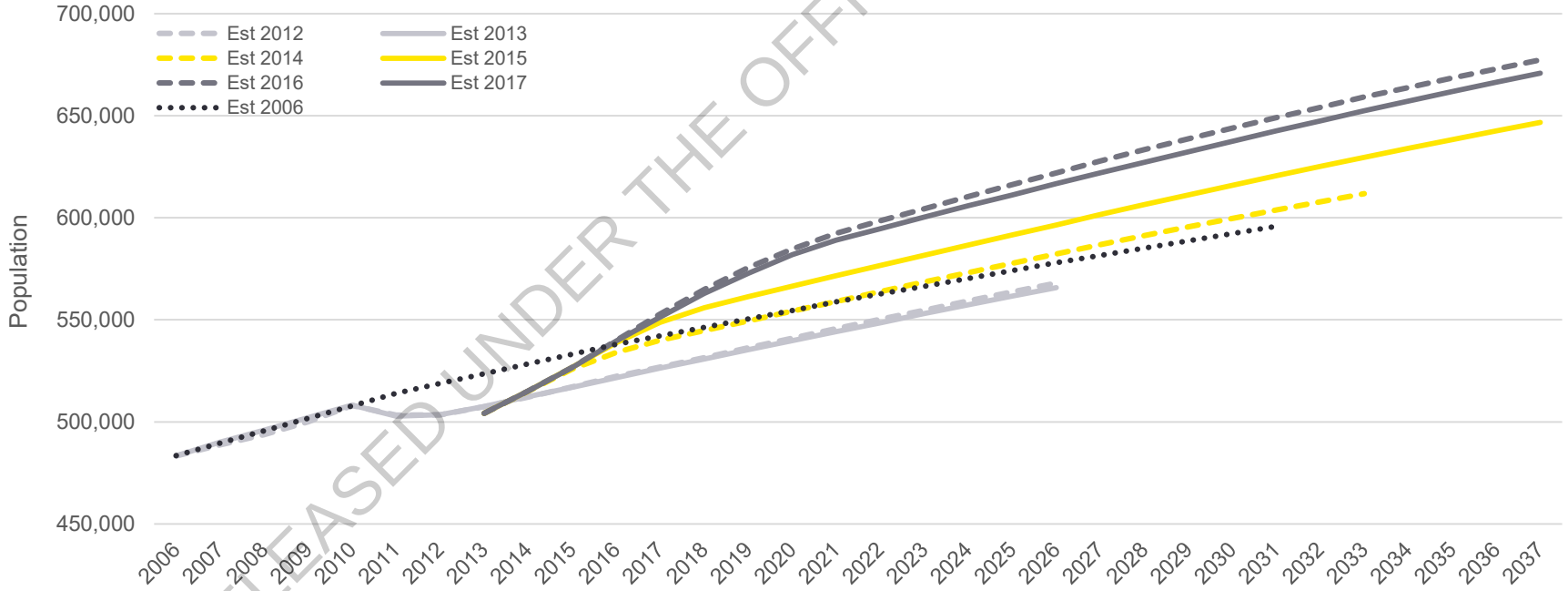


Canterbury population estimates – historical comparison

- A decline in population of ~5,000 can be seen between 2010 and 2011, followed by limited growth from 2011 to 2012, before increasing at a steady rate. Each projection thereafter projects steeper increases in population each year before levelling out.
- The 2006 projection is pre-earthquake to show what growth was projected to be. Projections after 2013 exceed that of the 2006 projection.

Estimated and projected Canterbury DHB population (2006-2037)

Source: Stats NZ projections for MoH, Stats NZ

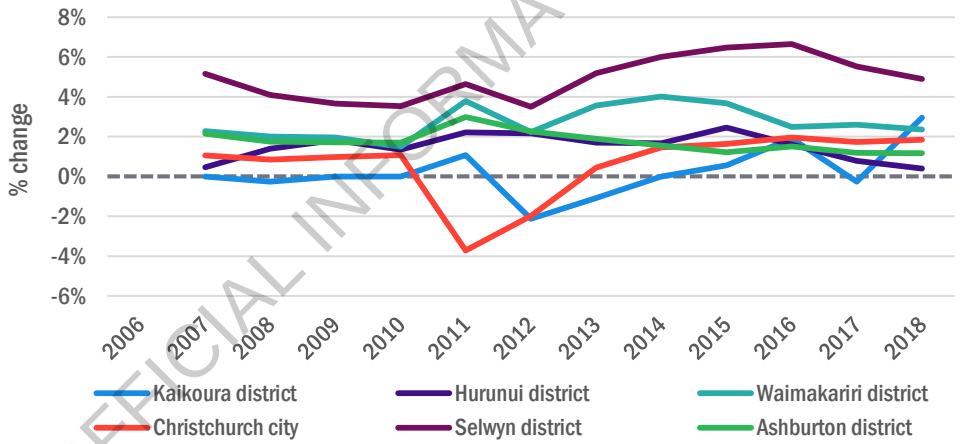


Population changes over time

- In 2011 Christchurch city sees an almost 4% decline in population following the February earthquake.
- All other TAs in Canterbury DHB had a spike in population increase, suggesting that some of those that left Christchurch City moved to a different region still within Canterbury, rather than out of Canterbury altogether.

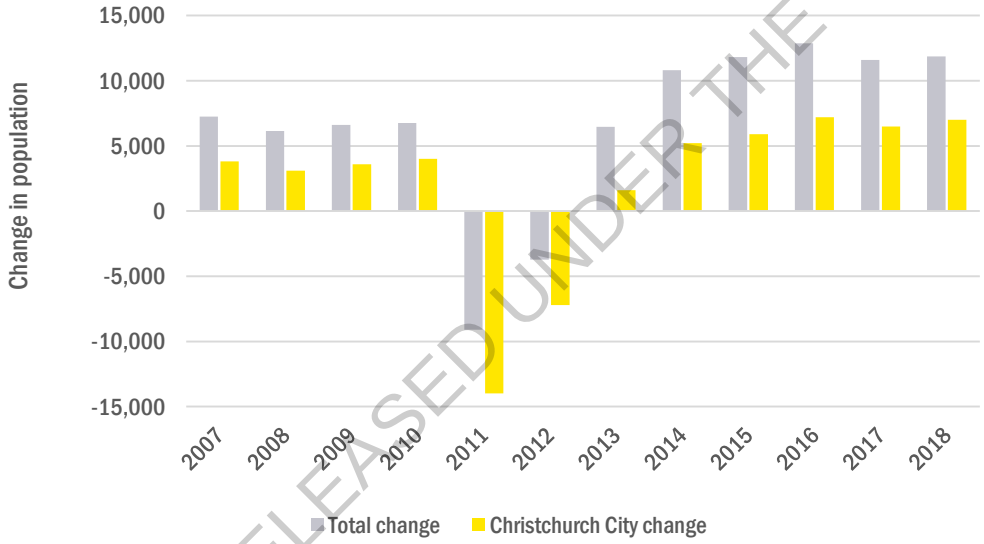
% change in population from previous year (2007-2018)

Source: Stats NZ



Population change from previous year (2007-2018)

Source: Stats NZ



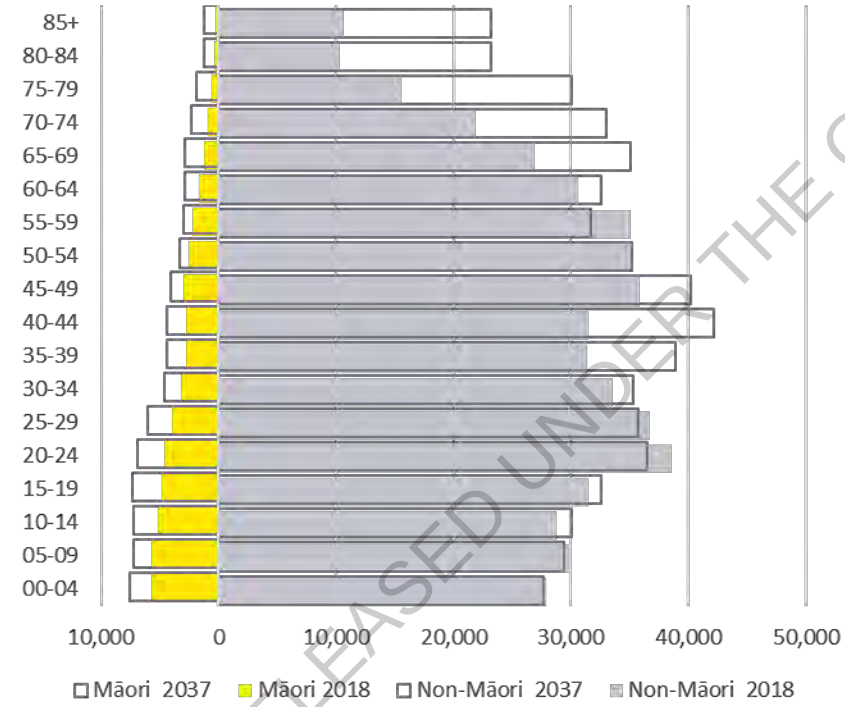
- In 2011 there is a decrease in Christchurch City of ~14,000 and a net decrease in Canterbury DHB of ~9,000 people.
- The decrease to Canterbury is smaller than that of Christchurch city, suggesting that some moved from Christchurch City into other regions within Canterbury.
- However as there is net decrease, the majority or ~9,000 in 2011 and ~4,000 in 2012 moved out of the Canterbury region following the earthquake.

Demographics

- The Canterbury population is undergoing structural ageing reflecting the national trend. This is more prevalent in the non-Māori population, as the Māori population is growing across all ages. The non-Māori population is experiencing little change at the younger ages, but is increasing significantly in older age groups.
- The non-Māori population is projected to grow at ~1.2%. Growth for the Māori population is stronger at 3.3% p.a. over the next 20 years.
- All TAs are growing between 1% p.a. and 4% p.a., except Kaikoura District which is projected to decline by 0.1% p.a.

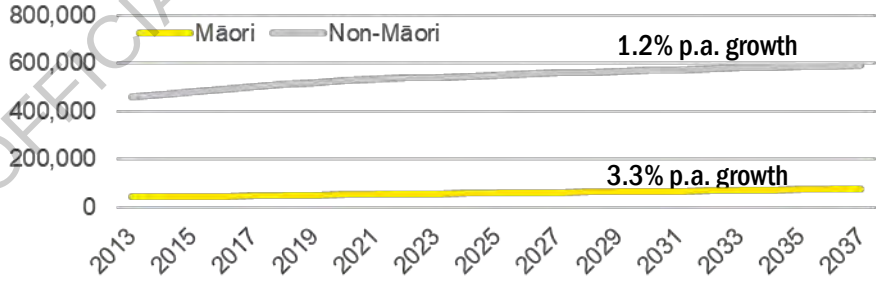
Age pyramid comparing changes between 2018 and 2037

Source: Stats NZ projections for MoH (2017 estimate)



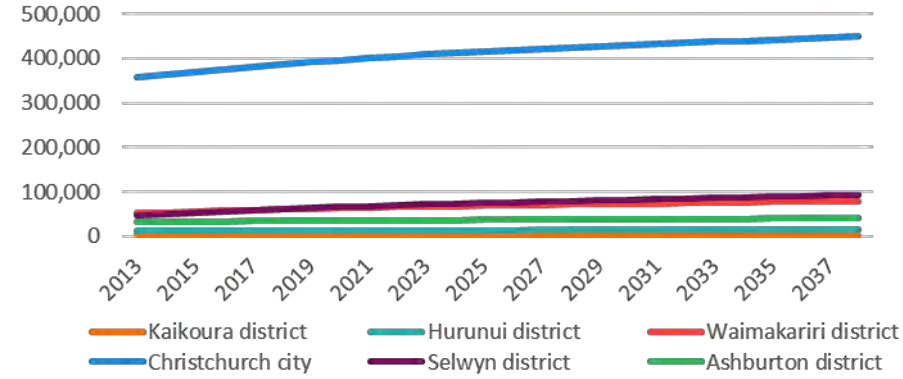
Population by ethnicity (2013-2037)

Source: Stats NZ projections for MoH (2017 estimate)



Population by territorial authority (2013-2037)

Source: Stats NZ



Population health risk factors

- Responses to the New Zealand Health Survey by Canterbury residents suggest that overall adult and children in Canterbury are healthier in general than the New Zealand population, and tend to lead healthy lifestyles, with only mood/anxiety disorders rates being higher than the New Zealand population.

1. Population health risk factors

Indicator for adults aged 15 years and over	Age-std prevalence (%) 2014-17		Difference (p-value; yellow = significant difference)
	CDHB	NZ	
Current smoking	15.2	17.2	0.04
Daily smoking	13.2	15.2	0.02
Hazardous drinking*	20.8	21.1	0.87
Physically active	51.9	50.3	0.34
Meets vegetable guidelines	63.1	61.3	0.20
Meets fruit intake guidelines	56.8	53.9	0.02
Adults obesity (BMI 30+)	27.0	30.5	0.01
High blood pressure	10.3	11.8	0.02
High cholesterol	7.1	8.2	0.03

Indicator for children	Age-std prevalence (%) 2014-17		Difference (p-value; yellow= significant difference)
	CDHB	NZ	
Ate fast food 3+ past week	4.5	7.1	0.02
Fizzy drink 3+ past week	13.4	17.4	0.02
Breakfast at home	88.9	85.5	0.03
Meets vegetable guidelines	58.6	53.5	0.03
Meets fruit intake guidelines	78.1	73.6	0.03
TV two hours+	41.8	42.6	0.76
Child obesity	6.8	11.3	0.00

2. Prevalence of key long-term conditions

Indicator for adults aged 15 years and over	Age-std prevalence (%) 2014-17		Difference (p-value; yellow = significant difference)
	CDHB	NZ	
Isch. heart disease	3.4	3.2	0..63
Stroke	1.1	1.1	1.00
Diabetes	3.4	4.5	0.01
Asthma (medicated)	11.7	11.2	0.49
Arthritis	11.7	12.6	0.22
Osteoarthritis	7.2	7.2	1.00
Chronic pain	15.6	17.8	0.02
Mood/anxiety disorder	22.4	18.4	0.00
Psychological distress	7.5	7.3	0.78

Key:

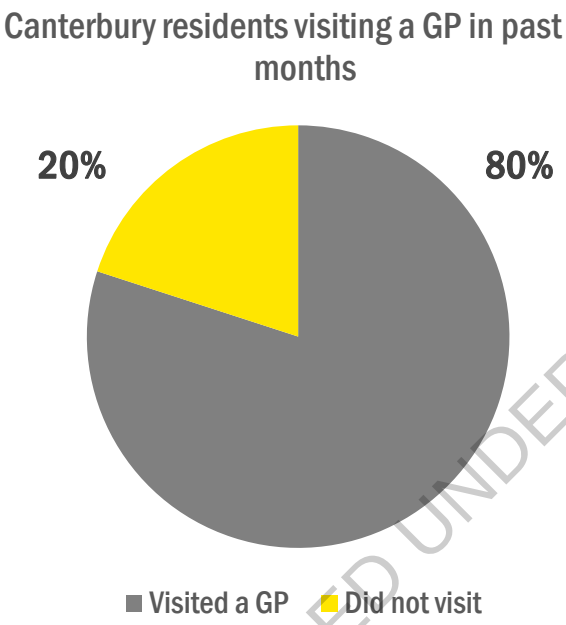
Negative trend
Positive trend
Significant difference

*Hazardous drinking information is only available for single years, so was measured using data from 2016/17

Source: NZ Health Survey 2014/17

Primary health care - Access

- 80% of Canterbury residents report seeing a GP in the past 12 months. For some of those residents who did not see a GP, barriers to access may have contributed to lack of use of these services. The main barriers to primary health care in Canterbury appears to be cost for GP and after-hours services with 14% and 7%, respectively, of respondents reporting these as a reason barriers to access. In total, 25% experienced unmet need for primary health care for some reason, which is lower than the national average of 28%.



Source: NZ Health Survey 2014/17

Reason (in past 12 months)	Canterbury	NZ	
Unable to get appointment at usual medical centre within 24 hours	14.0%	17.7%	👍
Unmet need for GP services due to cost in the past 12 months	**14.4%**	14.1%	👎
Unmet need for GP services due to lack of transport	2.9%	3.2%	👍
Unmet need for after-hours services due to cost	6.5%	6.5%	
Unmet need for after-hours services due to lack of transport	**1.4%**	1.3%	👎
Unfilled prescription due to cost	6.6%	6.6%	
Experienced unmet need for primary health care (any of the above)	**24.5%**	**28.0%**	👍

Primary health care - Targets

- Canterbury has a high level of resident enrolment with PHOs.
- Canterbury Māori tend to have lower coverage of key population health programmes than non-Māori residents. However, Canterbury Māori are more likely to be covered by these programmes than in other DHBS, being the only DHB where Māori have reached the target for breast screening.

Indicator	Target	Period	Canterbury Non-Māori	Canterbury Māori	Gap	Change	Waitemata Māori	Auckland Māori	Counties Manukau Māori	Waikato Māori	Capital & Coast Māori	Southern Māori
PHO Enrolment	90	Jan-Mar 2019	93.0	85.0	8	0	83.0	76.0	93.0	94.0	85.0	86.0
Breast Screening (50-69 yrs)	70	Oct-Dec 2018	76.3	70.1	6.2	0.5	63.3	59.0	66.6	59.5	66.9	67.9
Cervical Screening (25-69 yrs)	80	Oct-Dec 2018	75.3	66.6	8.7	2.8	61.0	52.9	64.8	69.5	63.1	69.3
Immunisation (8 mths)	95	Oct-Dec 2018	96.4	90.1	6.3	-2.7	88.2	83.7	82.8	80.6	86.4	89.1

Target attained	Within 10% of target
10-20% away from target	More than 20% away from target

Source: Trendly – note that all figures are percentages of the relevant population

Primary care – GP workforce

There are acknowledged pressures on the GP workforce. Key findings from College surveys include:

- 30.1% of GPs in Canterbury DHB intend to retire within the next 5 years (2022)
- 23.4% of GPs have poor work-life balance
- 21.3% of GPs have high burn out scores (7-10/10)
- 13.5% of GPs are unlikely to recommend general practice as a career (0-3/10)
- In 2015, Canterbury had a net promoter score of 7, the seventh lowest out of all DHBs
- In 2015, 37% of Canterbury GPs were aged over 55
- There are 73.2 FTE GPs per 100,000 population in Canterbury, compared to a low of 52 in MidCentral, and high of 86 in Capital and Coast

"... 41% of respondents now intend to retire by 2025. So of the 4,500 members of The Royal New Zealand College of General Practitioners' membership, 1,850 will be gone by 2025"

RCGPNZ Workforce Survey 2015

Source: RCGPNZ Workforce Survey 2015 & 2017

Falls and polypharmacy

- Canterbury has an above average length of stay from hospitalisations due to falls, but is broadly in line with national averages for the dispensation of 11+ long-term medications and far below the national rate for the "triple whammy"*.

Average bed days for people 85+ admitted with a fall (2016)

People 85+ dispensed 11+ long-term medications, total by year, rate per 1,000 (2016)

People 85+ who received the "triple whammy"*, total by year, rate per 1,000 (2016)

Note: The darker the shading the higher the rate of use

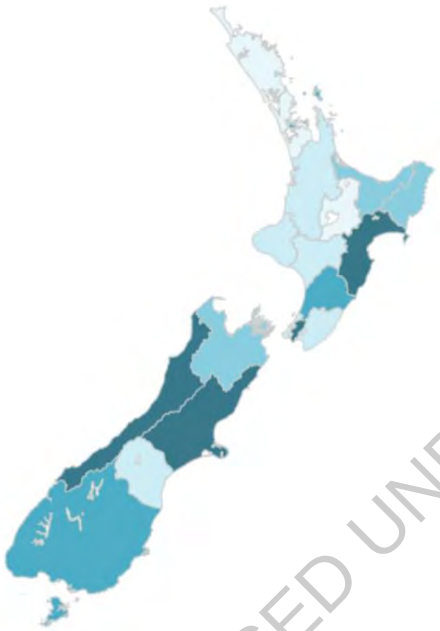
** The "triple whammy" is the combination of an angiotensin converting enzyme (ACE) inhibitor / angiotensin receptor blocker (ARB), a diuretic and a non-steroidal anti-inflammatory drug (NSAID). Medsafe notes an increased risk of acute kidney injury with this combination, especially in those with risk factors for renal failure and in older adults.*

Source: HQSC Atlas

Antipsychotics

- Canterbury has the second highest rate of people who received an antipsychotic and highest rate of and people dispensed both an antipsychotic and benzodiazepine or zopiclone, but is broadly in line with national averages for benzodiazepine or zopiclone.

People 65+ who received an antipsychotic (2016)



People 65+ dispensed both an antispsychotic and benzodiazepine or zopiclone (2016)

People 65+ who received a benzodiazepine or zopiclone (2016)

Note: The darker the shading the higher the rate of use

Source: HQSC Atlas

Indicators for long-term conditions

- Canterbury has low levels of asthma admissions compared to other DHBs, especially for adults, but above average for CVD*.
- Canterbury also has lower rates for diabetes than the national average. This may not necessarily mean Canterbury is performing better as it could be due to a lower or different disease burden or that those who need treatment are not receiving it.

Quality indicator	Canterbury	New Zealand
Asthma		
Childhood admissions due to asthma or wheeze	5.2 / 1,000 children	5.4 / 1,000 children
Adult admissions with a primary diagnosis of asthma	0.5 / 1,000 adults	0.9 / 1,000 adults
People (1-49) with at least two asthma admissions within 90 days	13.5%	13.7%
CVD	Percentage	Percentage
On triple therapy	61.2%	58.6%
On statins alone	70.9%	69.8%
On BP lowering medication	78.5%	77.4%
On antiplatelets/anticoagulants	78.3%	74.8%
On a combination of statins and BP lowering medication	65.2%	64.1%
Diabetes	Rate / 1,000 people	Rate / 1,000 people
25 yrs + and receiving metformin or insulin	48.6	48.8
25 yrs + and receiving ACEI or ARB	46.2	47.5
Admissions for ketoacidosis	0.4	0.3
Proportion of medical/surgical bed days	15.0	17.8
Regular HBA1c monitoring	80.1	86.5
Regular screening for renal disease	46.7	65.5

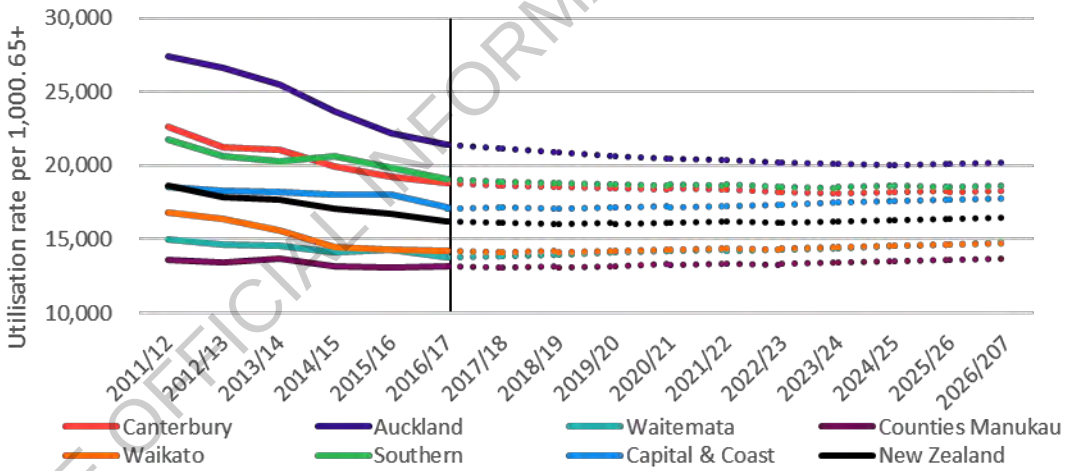
Note: 1st in rank means lowest or healthiest
Source: HQSC Atlas 2016/2017

* CVD = cardiovascular disease

Aged residential care

- Canterbury's utilisation is above the New Zealand average.
- Canterbury's utilisation rate is projected to decrease at a similar rate to other DHBs.

Average aged residential care utilisation by DHB, 65+ years



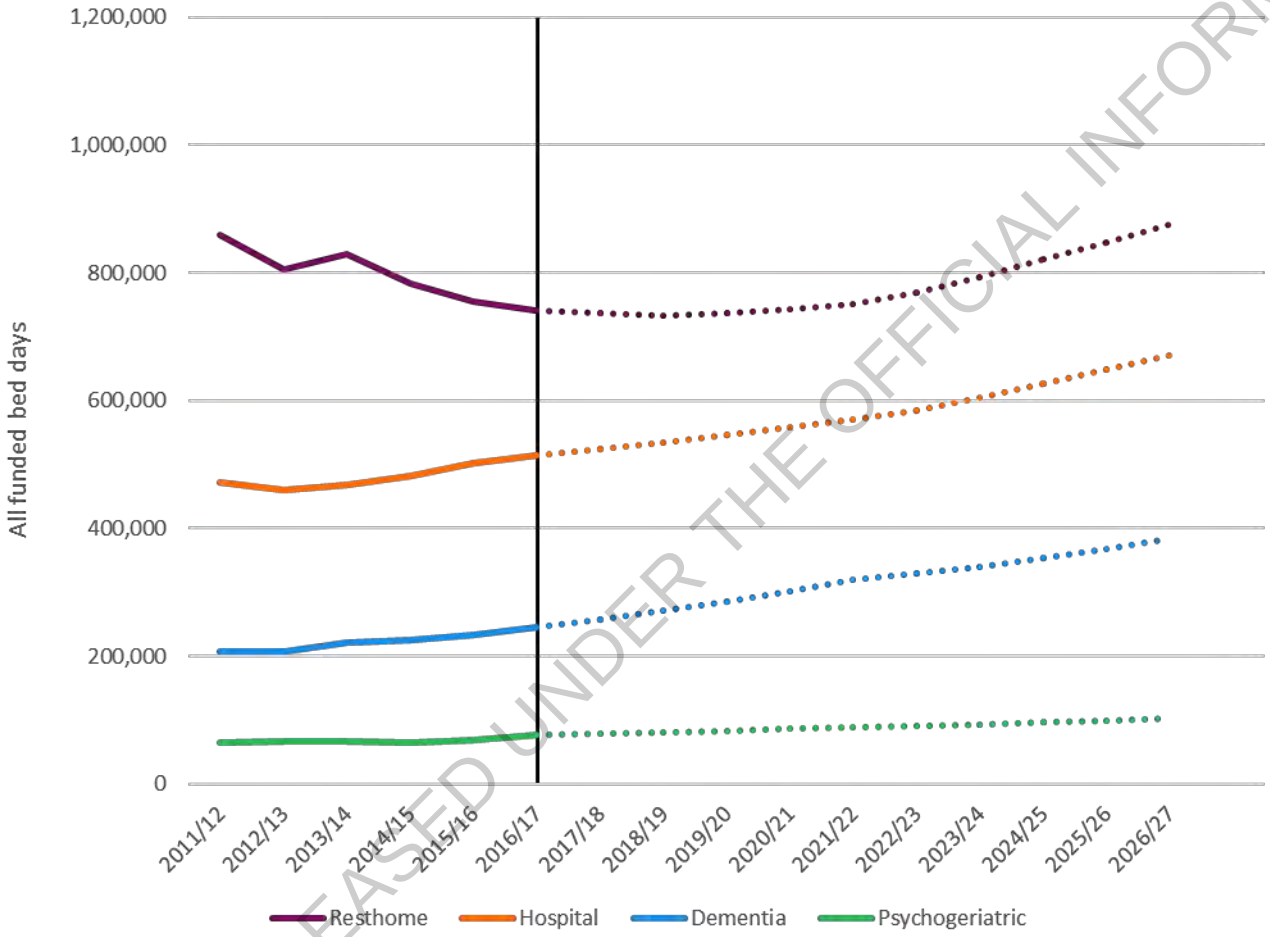
Average aged residential care utilisation by locality, 65+ years

- Utilisation is highest in Christchurch City.
- Selwyn District has far lower utilisation than other Districts in Canterbury, but is growing fastest at 26% from FY17 to FY27.
- The Kaikoura/Hurunui/Waimakariri area is growing by 18% from FY17 to FY27 to almost reach the national utilisation rate.

Source: ARC Model 2017, DHB Shared services. Includes all residential care beds, all funder, ages 65+, projections based on population change only

Aged residential care

Canterbury funded bed days by type of care, past 5 year trend, 65+



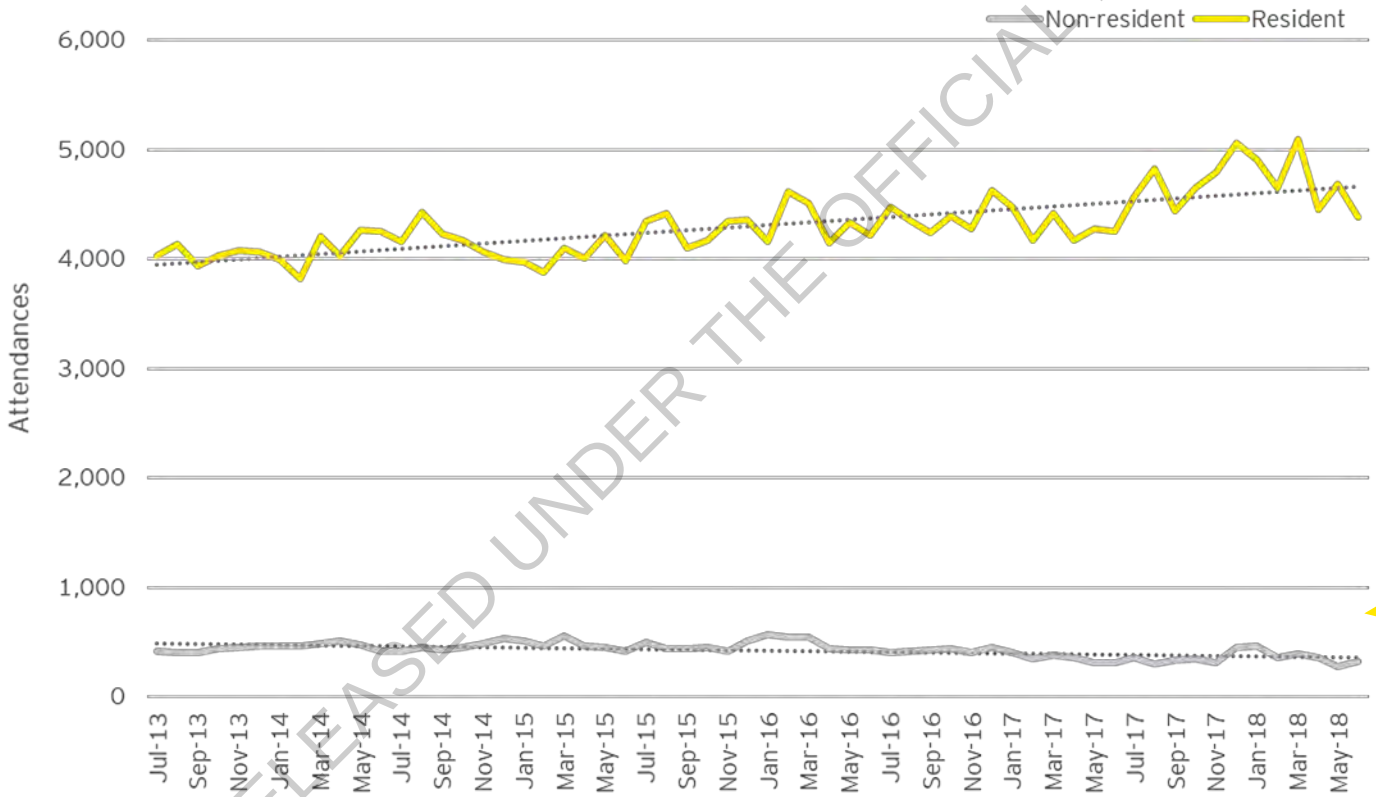
- Between 2011/12 and 2016/17 rest home bed days decreased by 13.7%.
- In comparison, hospital bed days increased by 9.0%, dementia by 18.8% and psychogeriatric by 19.5%.
- By 2026/27, rest home bed days are projected to increase by 18% - the slowest growth, while Dementia bed days are projected to increase by 56%, the fastest growth.

Secondary care trends

Non-admitted ED attendance trends

- In the last 5 years Canterbury has experienced a 17% increase in non-admitted ED attendances for residents.
- Attendances for non-residents are slowly decreasing over time, but relatively constant compared to resident.

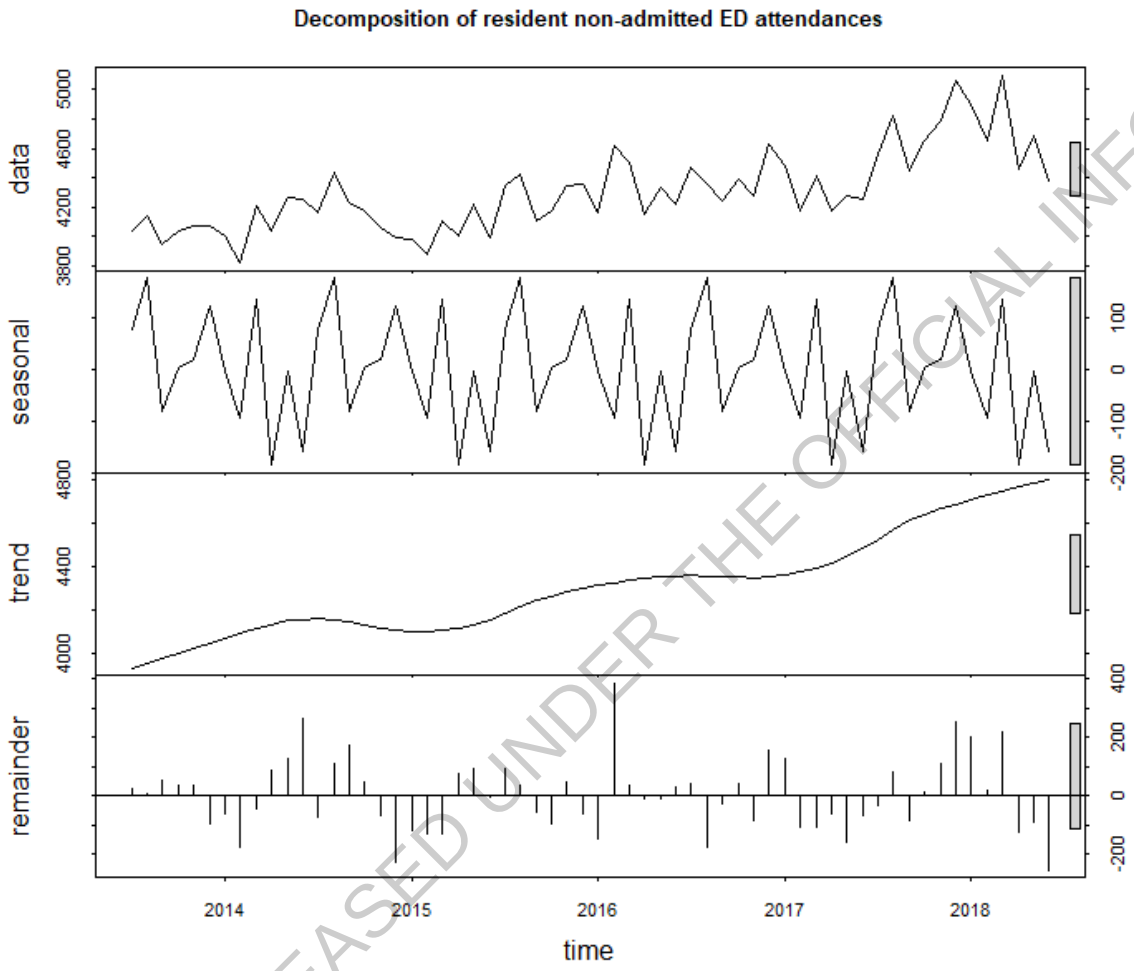
Non-admitted ED attendance



Non-admitted resident ED attendees increasing by around 3.5% p.a.

Non-resident-non-admitted ED attendances - around 300 non-resident vs 4,400 resident attendances for month of June 2018

Resident non-admitted ED attendance trend analysis

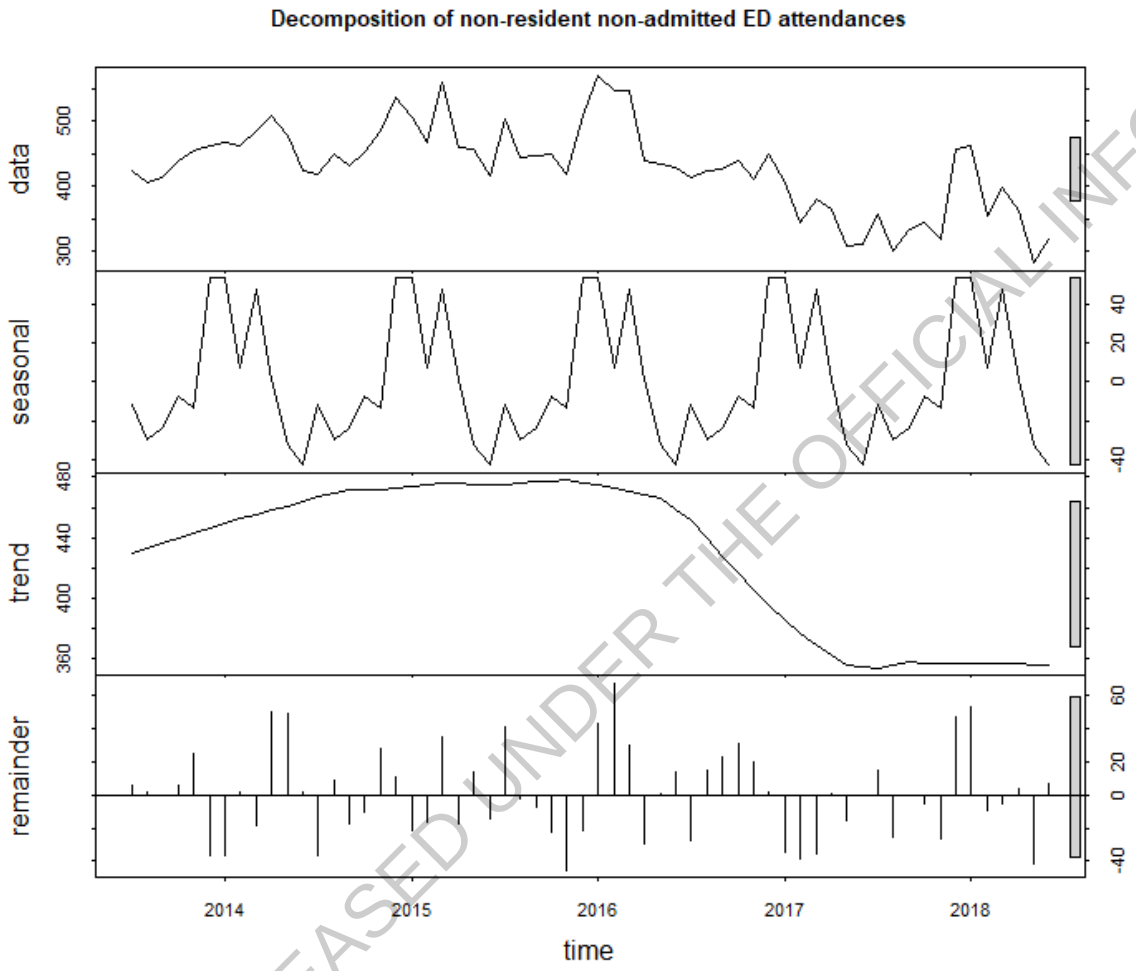


Large variability across months, seems to be strong peaks in summer and winter.

Irrespective of the seasonal effects there has been an increasing trend over time.

Some low levels of random variation in this series, with some large peaks

Non-resident non-admitted ED attendance trend analysis



There is a distinct seasonal trend with a large peak over summer months each year.

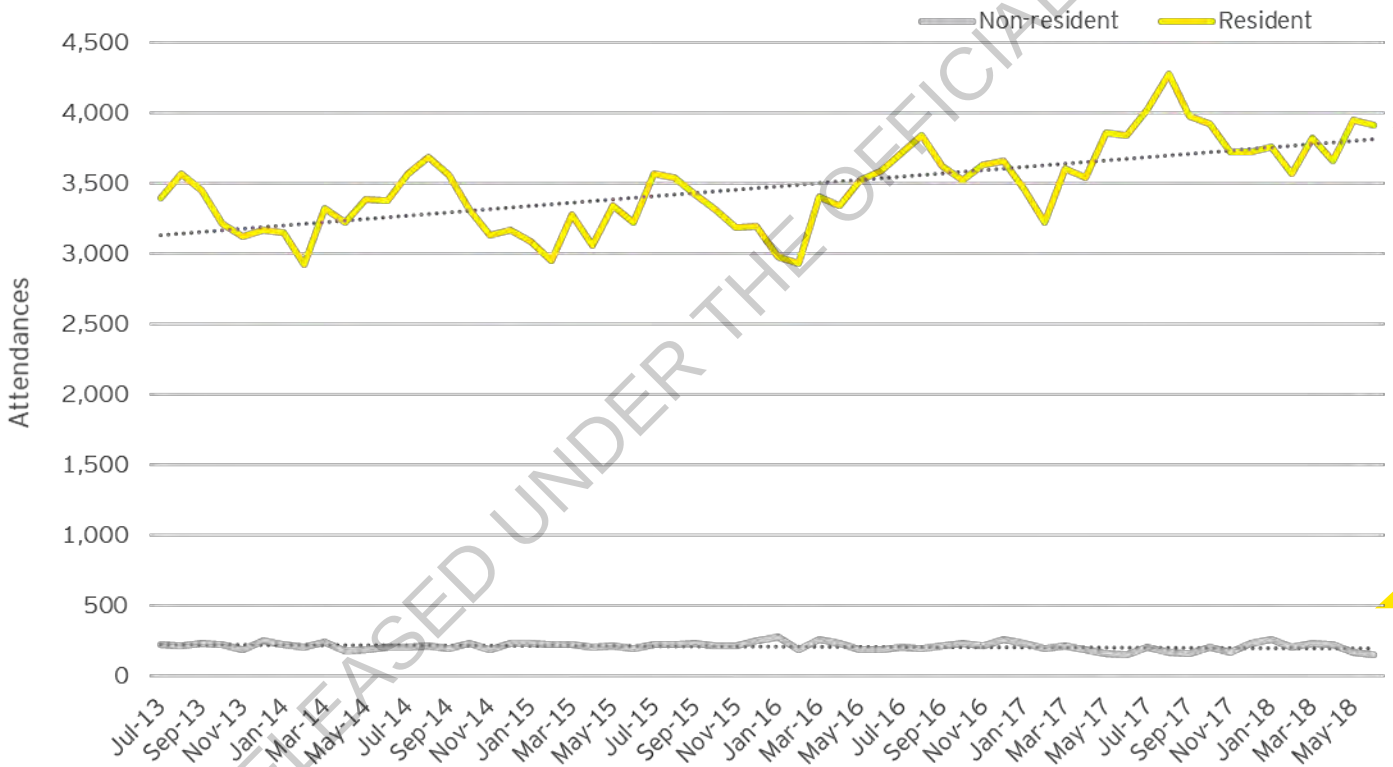
The trend appears to be slow and increasing until 2016, where the trend declines suddenly before levelling out in 2017 and 2018.

Random variation makes up a significant portion of the variation in this series.

Admitted ED attendance trends

- In the last 5 years, Canterbury has experienced a 10% increase in resident admitted ED attendances, but a 6.7% decrease in non-resident admitted attendances.
- The strength of the winter peaks for residents perhaps indicate increasing frailty or comorbidity in the population.
- Non-resident attendances have remained fairly constant over time at around 200 attendances per month, with a small peak around summer each year.

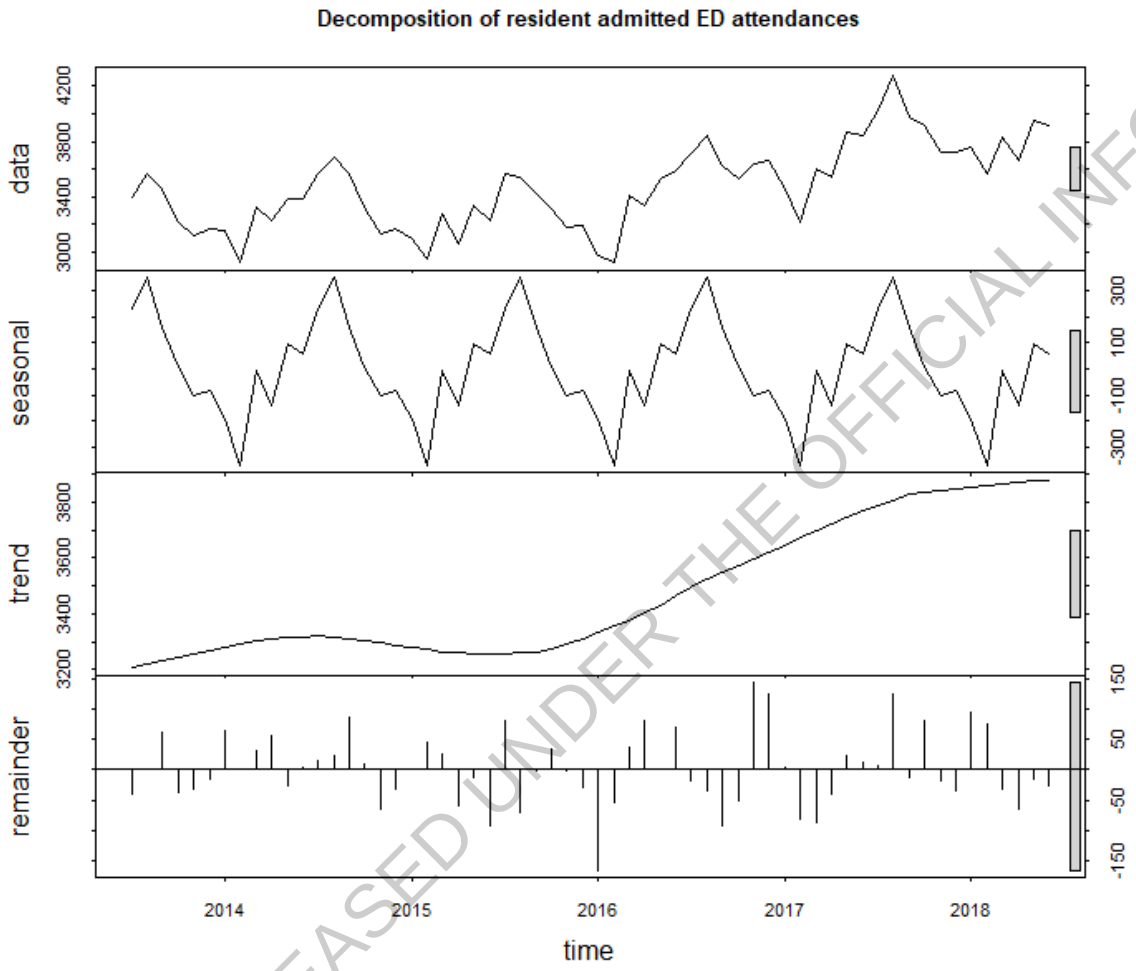
Admitted ED attendance



Resident admitted ED attendances increasing by around 2.0% p.a.

Admitted-non-resident ED attendances small and slightly declining in comparison, some summer spikes

Resident admitted ED attendance trend analysis

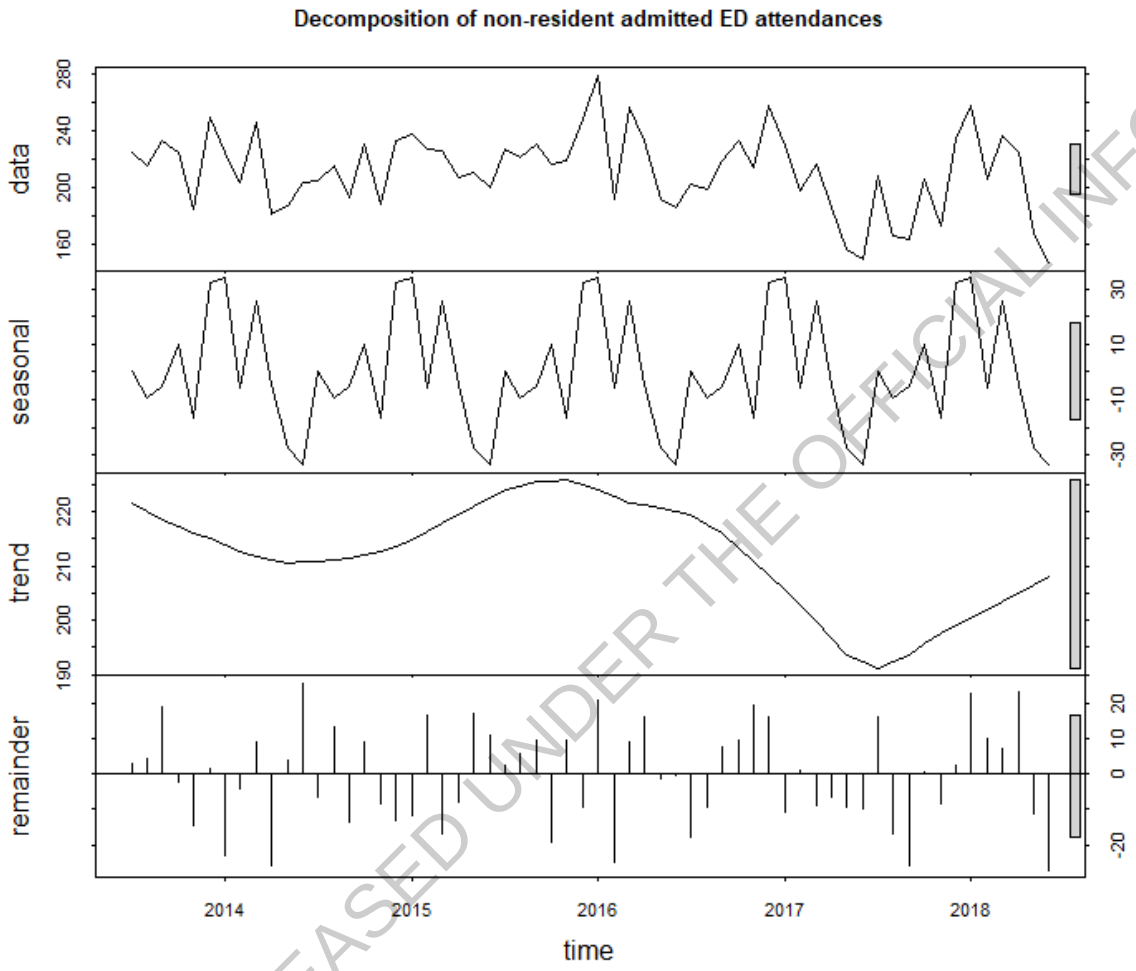


The seasonal trend shows a peak over the winter months when more residents are admitted.

Trend appears to start growing significantly from 2016

Random variation across this series is relatively small, but becoming larger over time

Non-resident admitted ED attendance trend analysis



The seasonal trend peaks in summer each year, with a small peak in the winter months.

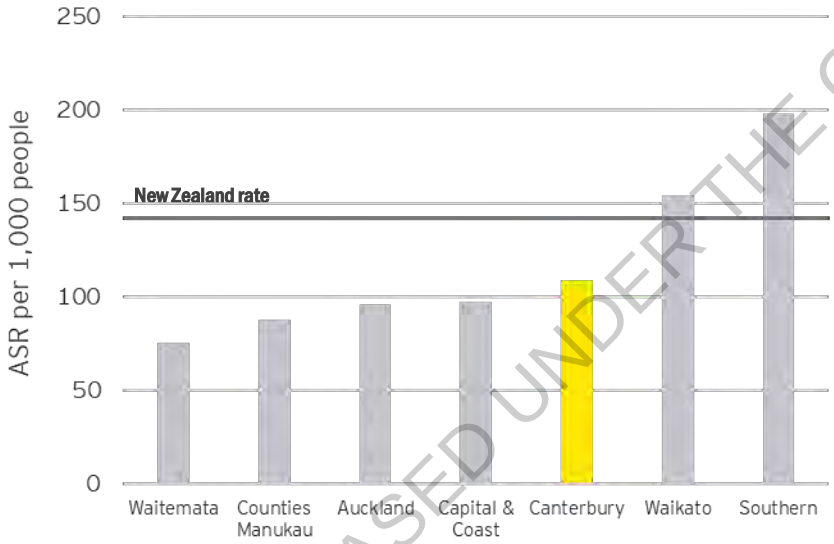
No clear trend with peaks and troughs. It has appeared to decrease over this period, but is increasing again in 2018

Some low level random variation fairly constant over time

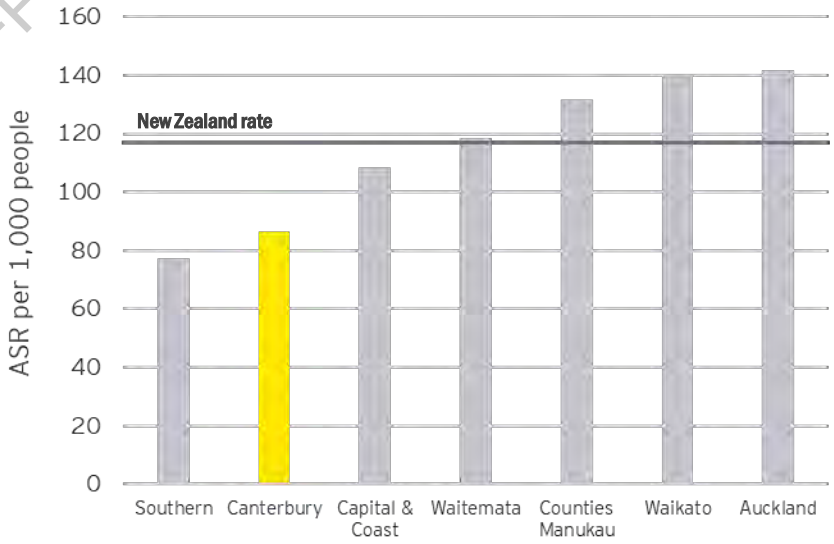
ED attendance rate benchmarking

- Canterbury has ED rates below the national average for both non-admitted and admitted.
- Canterbury has the second lowest rate of admitted ED attendances, after Southern DHB, potentially indicating that Canterbury/Southern effectively manage the 'front door' in comparison to other DHBs, or could reflect models of care in rural hospitals.

Non-admitted ED attendances (FY18)
Source: NNPAC, SNZ, EY analysis



Admitted ED attendances (FY18)
Source: NNPAC, SNZ, EY analysis



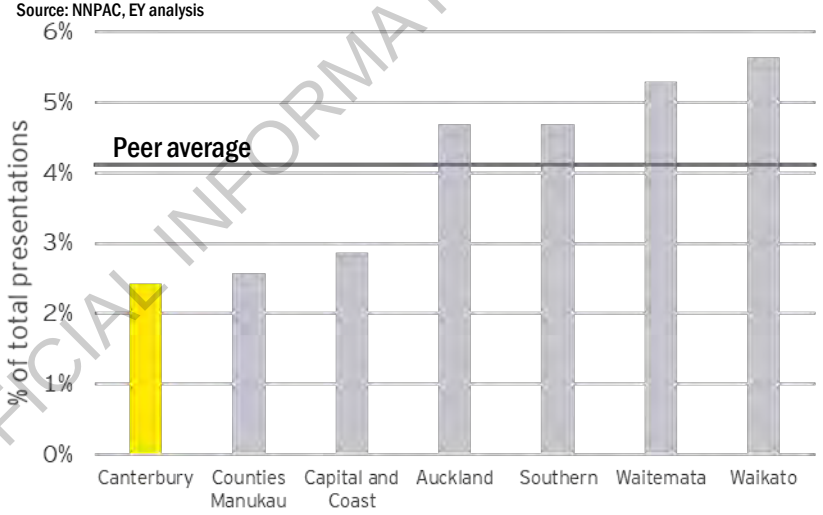
* benchmark DHBs selected based on the similarities of population size, and services provided.

ED re-presentations

- This includes presentations to Canterbury ED where they were discharged from another DHB's ED within the time frame.
- Canterbury has the lowest or near lowest rate of re-presentations to ED after discharge.

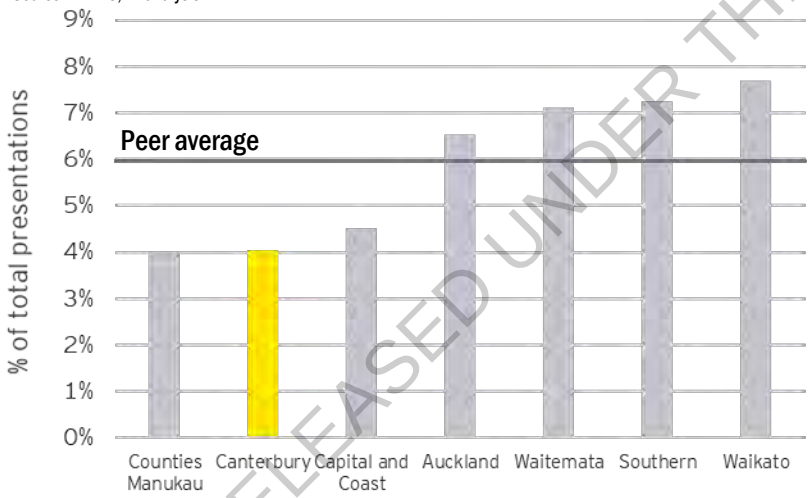
Re-presentations within 24 hours of discharge (FY18)

Source: NNPAC, EY analysis



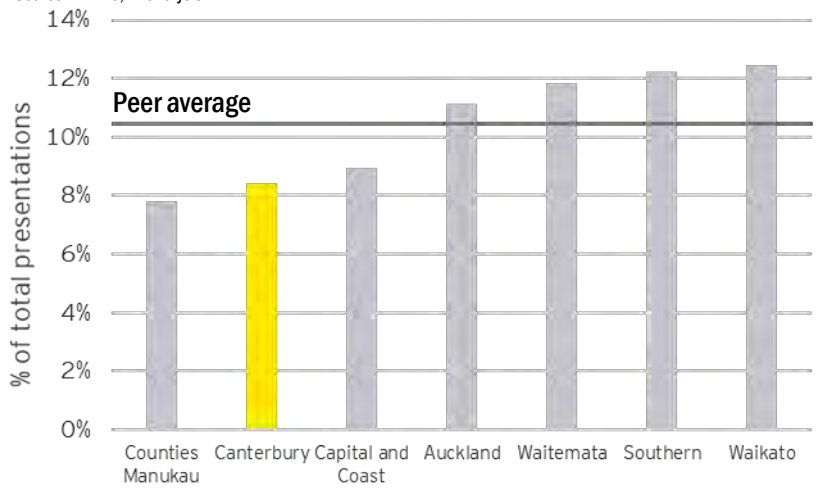
Re-presentations within 48 hours of discharge (FY18)

Source: NNPAC, EY analysis



Re-presentations within one week of discharge (FY18)

Source: NNPAC, EY analysis

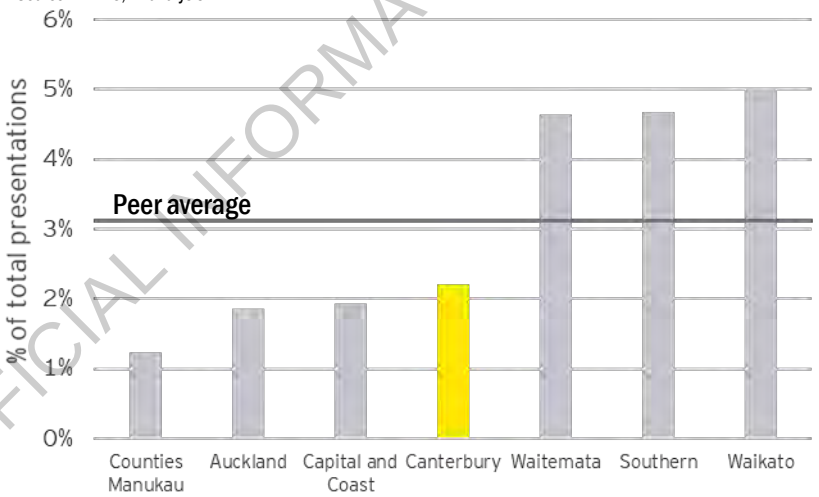


ED re-presentations *cont'd*

- This excludes presentations to Canterbury ED where they were discharged from another DHB's ED within the time frame.
- Re-presentations to Canterbury ED that were discharged from Canterbury are all below the peer average, however higher relative to peers than when presentations to other hospitals are included.

Re-presentations within 24 hours of discharge (FY18)

Source: NNPAC, EY analysis

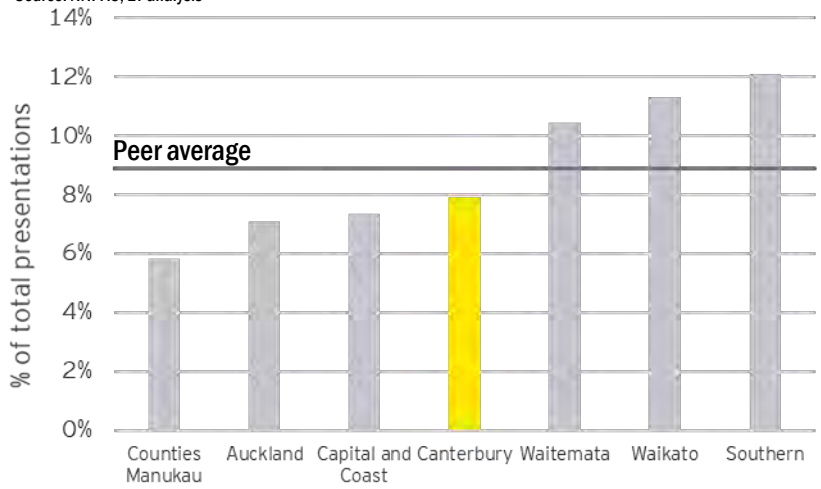


Re-presentations within 48 hours of discharge (FY18)

Source: NNPAC, EY analysis

Re-presentations within one week of discharge (FY18)

Source: NNPAC, EY analysis

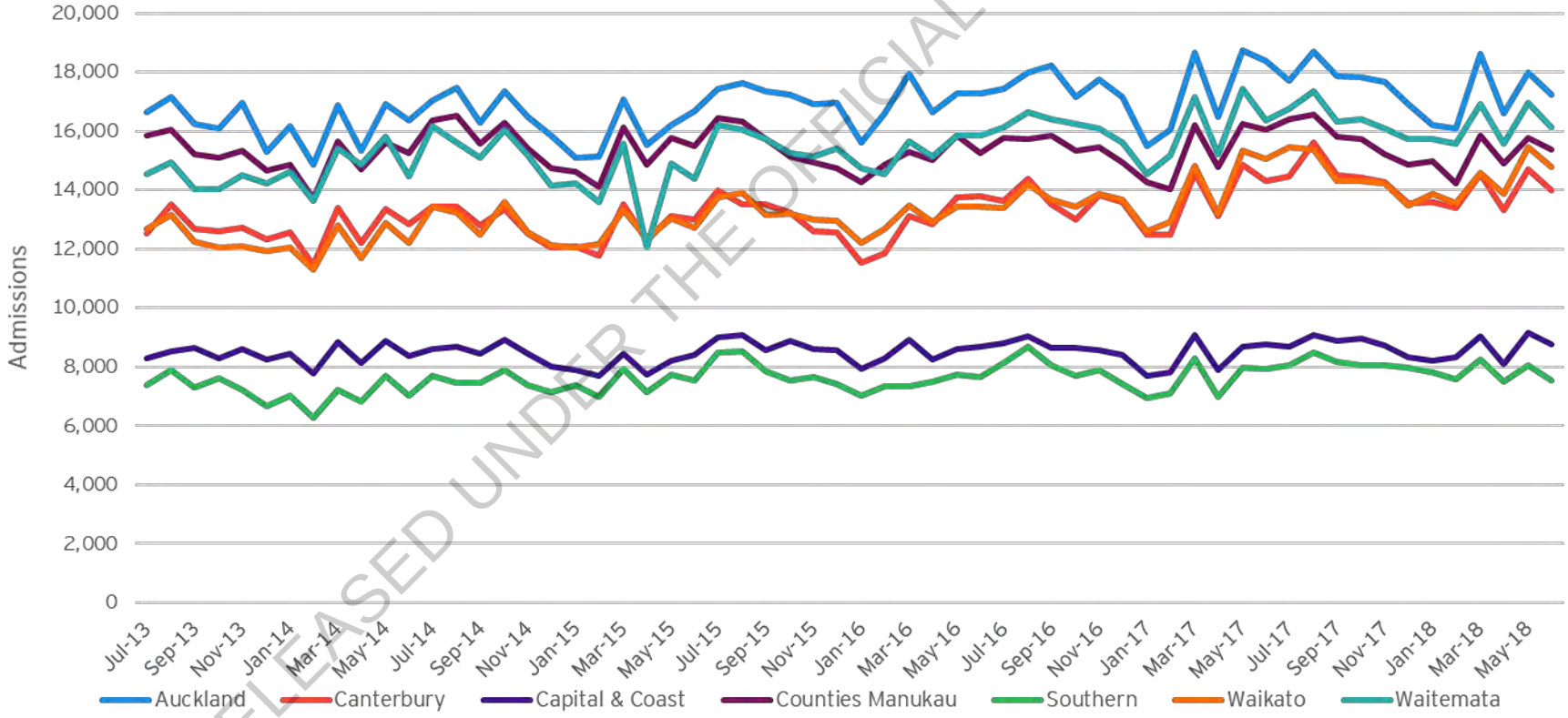


Admissions

- From FY13 to FY18 Canterbury experienced an 12% increase in overall admissions, increasing from ~12,500 in July 2013 to ~14,000. in Jun 2018.
- Canterbury has a similar volume of admissions to Waikato after Auckland, Waitemata and Counties Manukau.

Total Admissions

Source: NMDS



Hospitalisation benchmakring

- Compared to select DHBs, Canterbury appears to have below average rates of med / surg hospitalisations, slightly higher mental health hospitalisation rates, and higher AT&R hospitalisation rates.

Total hospitalisations by DHB (FY18)

Source: NMDS, SNZ, EY analysis

Medical and surgical hospitalisations by DHB (FY18)

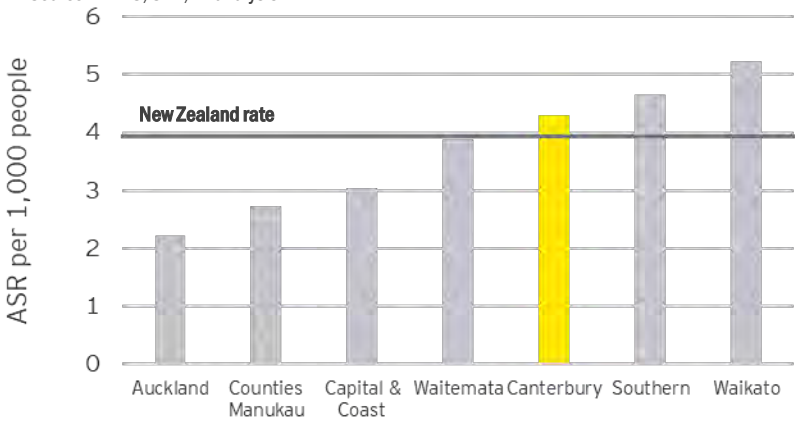
Source: NMDS, SNZ, EY analysis

AT&R hospitalisations by DHB (FY18)

Source: NMDS, SNZ, EY analysis

Mental health hospitalisations by DHB (FY18)

Source: NMDS, SNZ, EY analysis



Standardised discharge ratios*

- Canterbury carries out fewer procedures than the NZ average for tubal ligations, knee replacements, and prostatectomies, but carries out more grommets, cholecystectomies and tonsils, with 22% cholecystectomies procedures than the national average, 26% more grommets, and 30% more tonsils.

Surgical procedure	Canterbury	Auckland	Waitemata	Counties Manukau	Waikato	Capital and Coast	Southern
Tubal ligation	0.15	0.52	1.05	0.8	0.13	1.13	1.35
Total knee replacement	0.66	0.9	1.11	1.07	1.21	1.18	0.73
Prostatectomies	0.75	0.87	0.86	1.06	0.78	0.87	1.35
Cataracts	0.83	1.28	1.18	1.09	0.84	0.98	0.97
Carpal tunnel procedures	0.83	0.5	0.81	0.99	1.21	1.07	1.49
Coronary artery bypass grafts (CABG)	0.85	1.02	1	0.95	1.31	0.75	1.3
Angioplasties	0.95	0.94	1.2	0.93	1.01	0.93	1.02
Total hip replacement	0.95	0.71	0.8	0.92	1.14	1.01	1.17
Hysterectomies	0.97	0.64	0.95	0.88	1.06	0.83	1.12
Heart valve replacements and repair	0.97	0.83	0.82	0.91	1.26	0.67	1.33
Repairs of hernia	1.05	0.75	1.06	0.92	0.96	1.05	0.91
Cholecystectomy	1.22	0.61	1.02	0.99	1.12	0.87	1.17
Grommets	1.26	1.08	0.8	0.73	1.48	0.78	1.07
Tonsils and adenoids	1.3	0.88	0.75	0.79	1.35	0.79	1.01

Key:

Ratio significantly larger than the New Zealand average
Ratio significantly smaller than the New Zealand average

**Note: Discharge ratios provide a measure to assess how a DHB is performing relative to the rest of New Zealand after standardising for sex, age, ethnicity, and social deprivation within each DHB – and a value of 1 represents a DHB providing a service at the average rate across New Zealand*

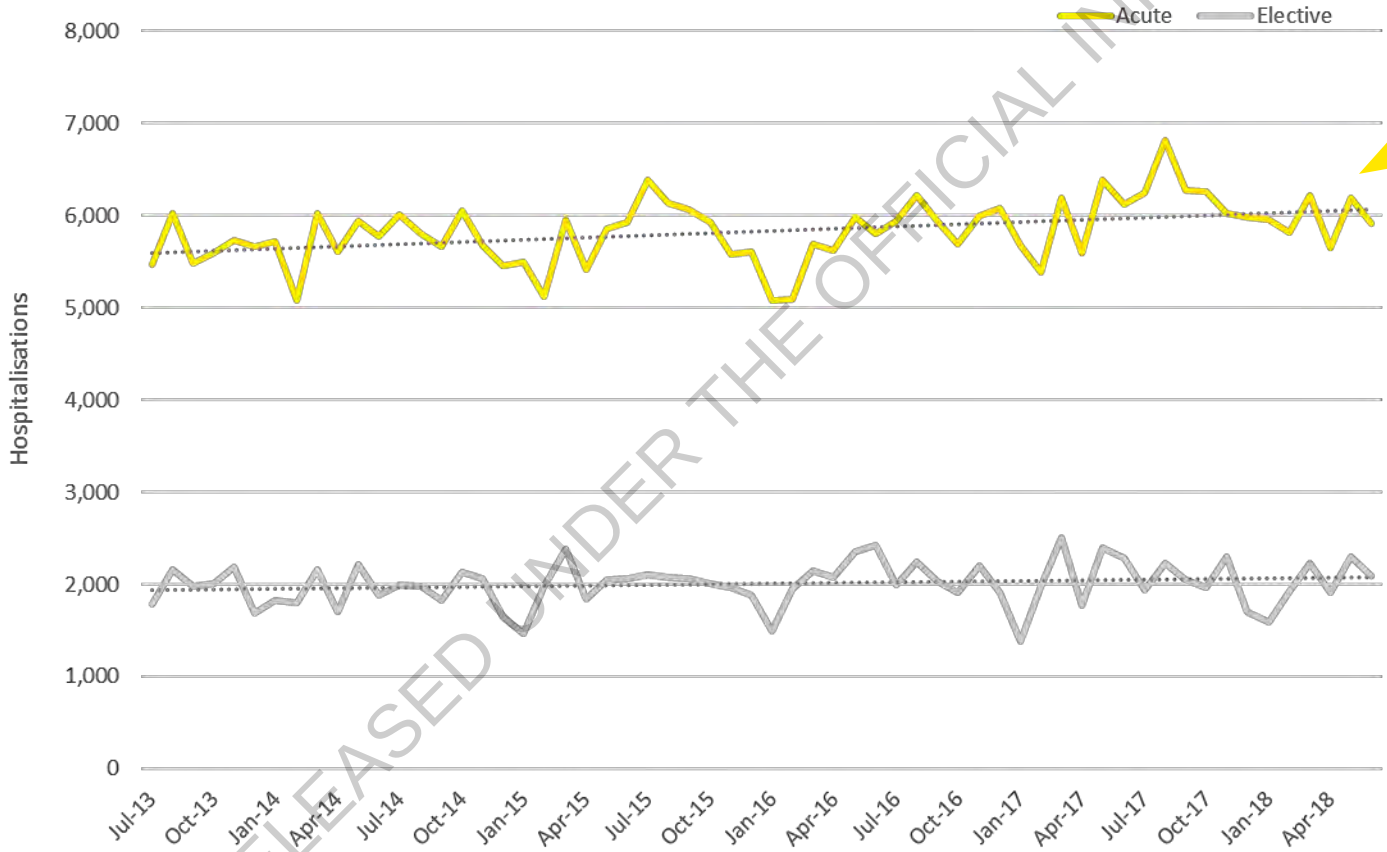
Source: MoH 2017/18

Medical and surgical hospitalisation trends

► Acute medical / surgical hospitalisations have been growing slowly, below population growth, and slower than elective hospitalisations.

Medical and surgical hospitalisations

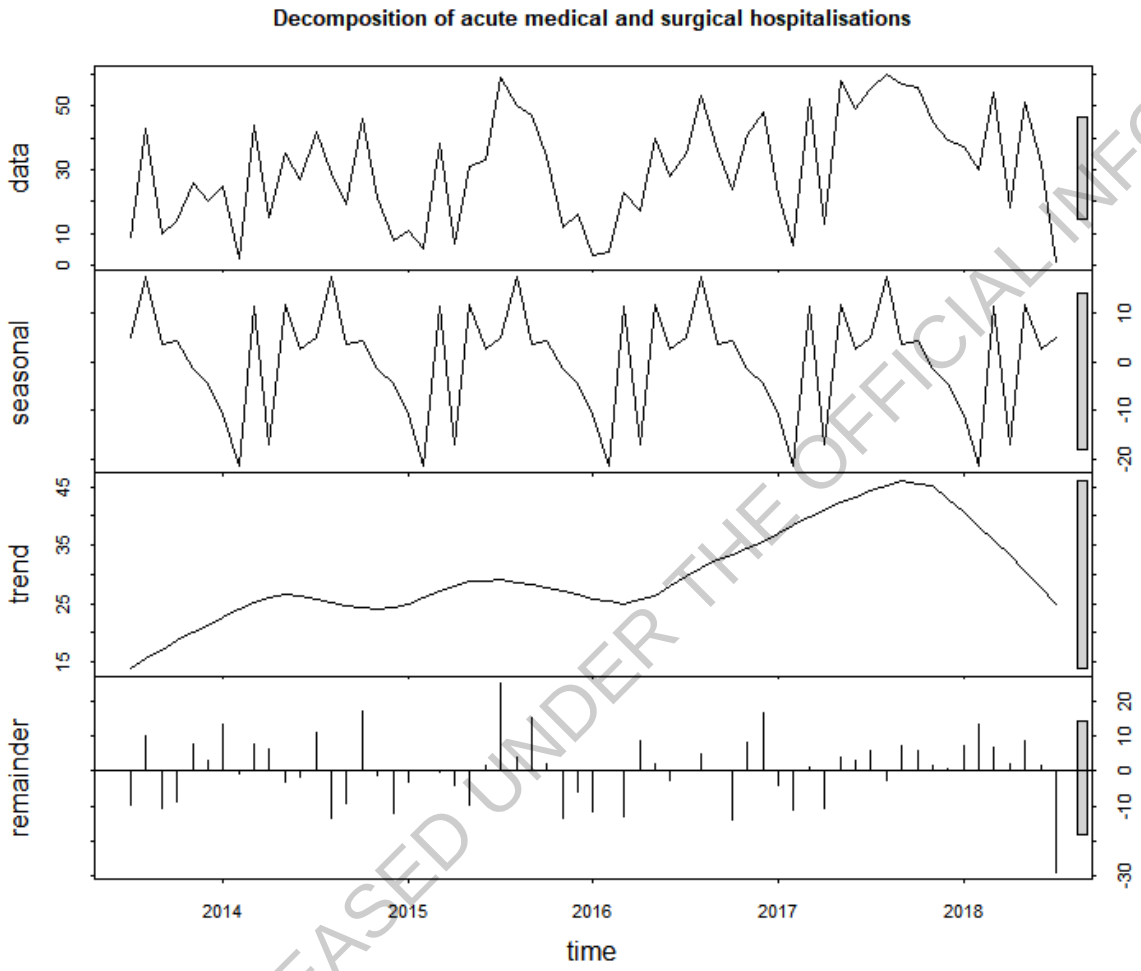
Source: NMDS



If current trends hold, acute medical and surgical hospitalisations will increase by around 1.0% p.a.

Elective hospitalisations have also been growing, at a rate of 2.3% p.a.

Acute medical and surgical hospitalisation trend analysis

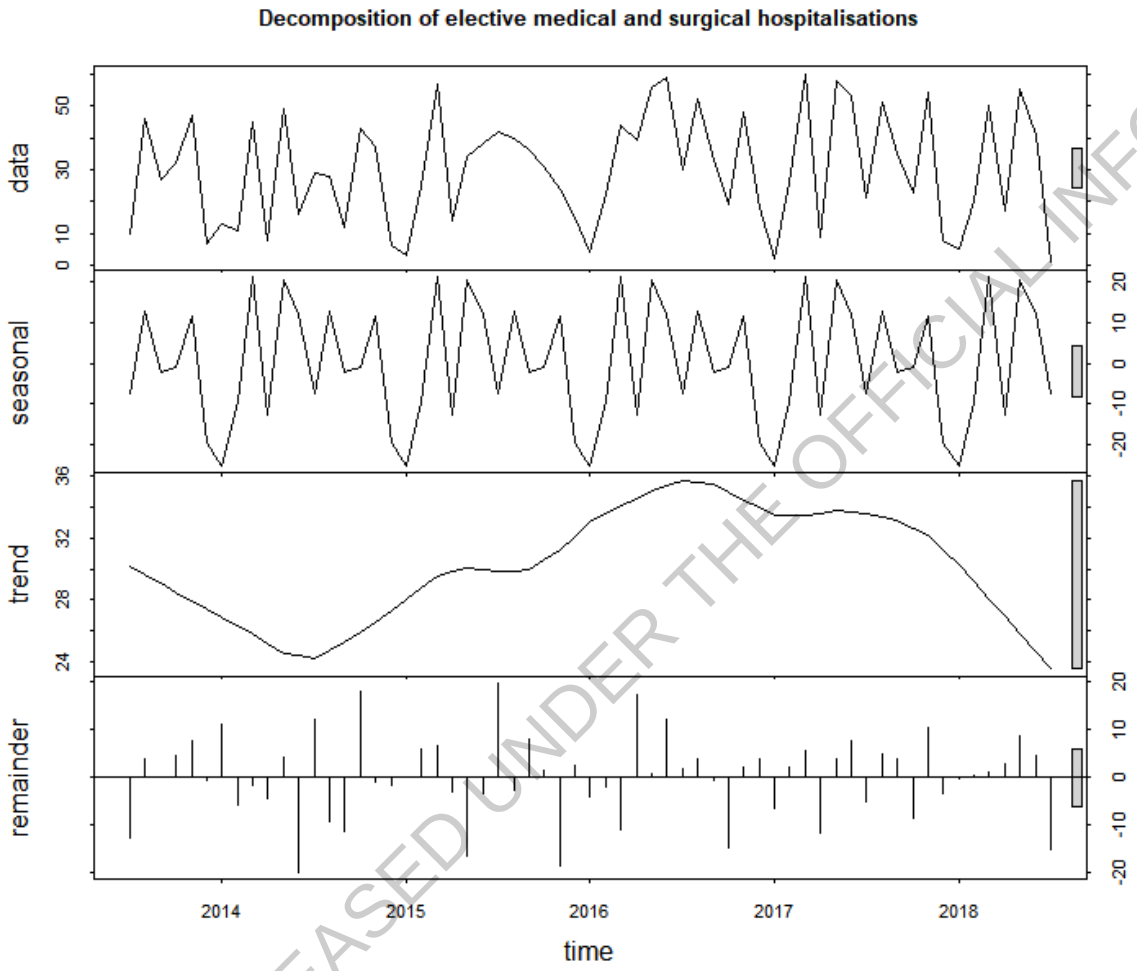


Looking at the seasonal trend, there is a consistent decreases during summer months, and conversely increases during winter.

There has been an increasing acute medical and surgical hospitalisations trend, which appears to be have decreased since late 2017.

There is significant random variation in acute medical and surgical hospitalisation rates

Elective medical and surgical hospitalisation trend analysis



There is a consistent decline each year over the Christmas period.

The trend was increasing until mid-2016 where it started decreasing again.

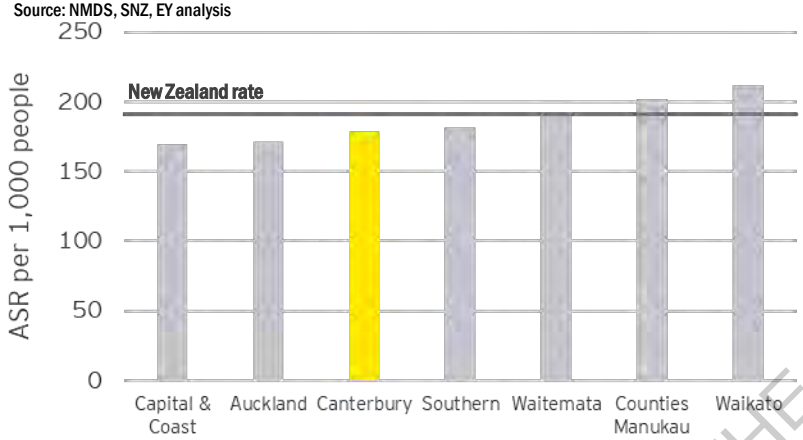
There was significant volatility in 2015/16 between months with some of the busiest and quietest months leading to significant random variation. From 2017 random variation has declined.

Acute and elective hospitalisation benchmarking

- Compared to select DHBs, Canterbury has below average acute and elective hospitalisation rates. Canterbury has the lowest acute medical and surgical rate among comparator DHBs.

Acute hospitalisations by DHB (FY18)

Source: NMDS, SNZ, EY analysis



Acute medical & surgical hospitalisations by DHB (FY18)

Source: NMDS, SNZ, EY analysis

Elective hospitalisations by DHB (FY18)

Source: NMDS, SNZ, EY analysis

Elective medical & surgical hospitalisations by DHB (FY18)

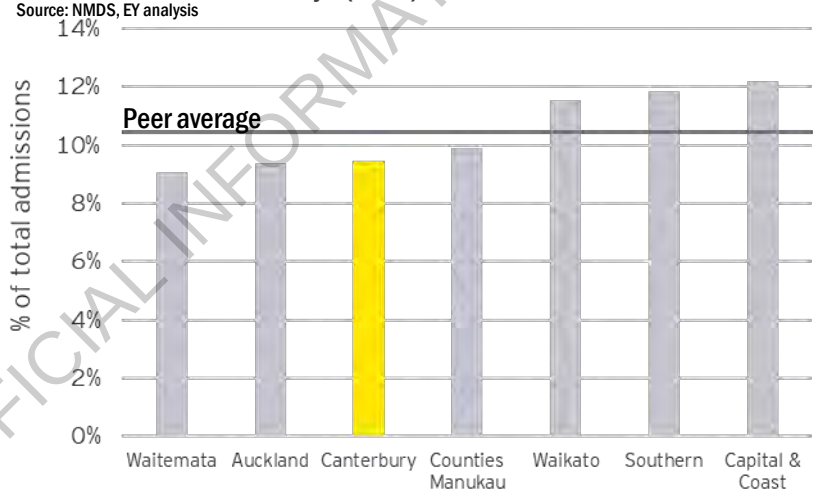
Source: NMDS, SNZ, EY analysis

Hospital readmissions

- This includes admissions to Canterbury ED where they were discharged from another DHB within the time frame.
- Canterbury has a below average rate of readmissions, including transfers from other DHBs.

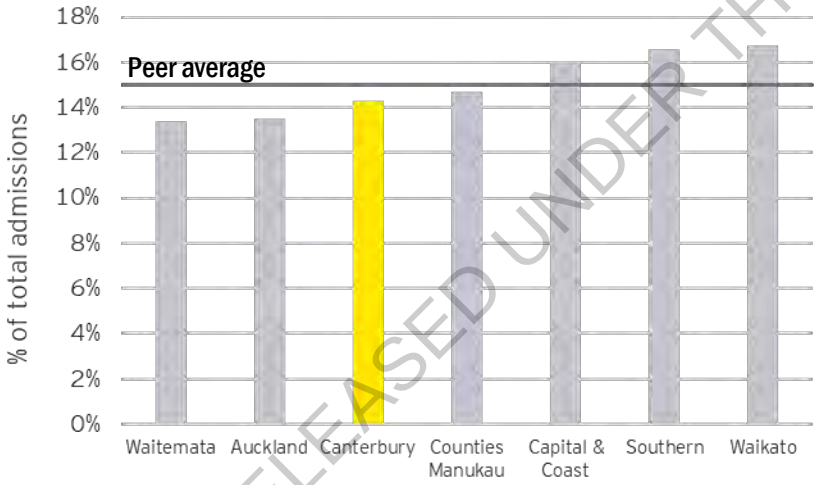
Readmissions within 7 days (FY18)

Source: NMDS, EY analysis



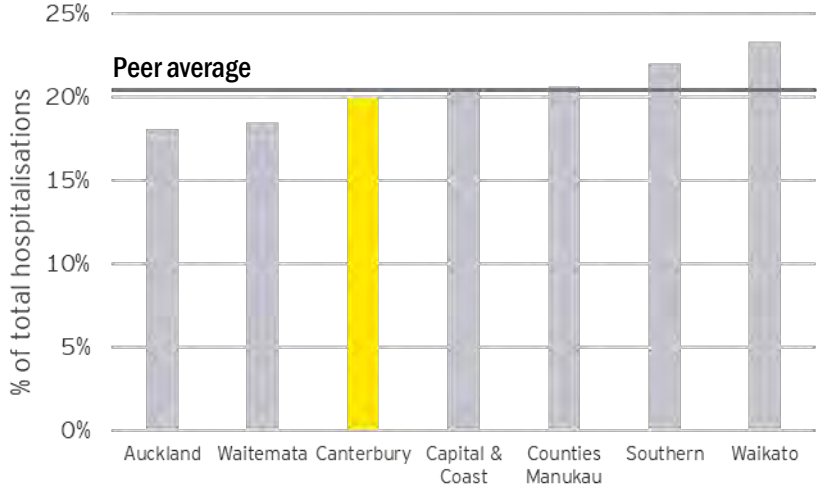
Readmissions within 14 days (FY18)

Source: NMDS, EY analysis



Readmissions within 28 days (FY18)

Source: NMDS, EY analysis

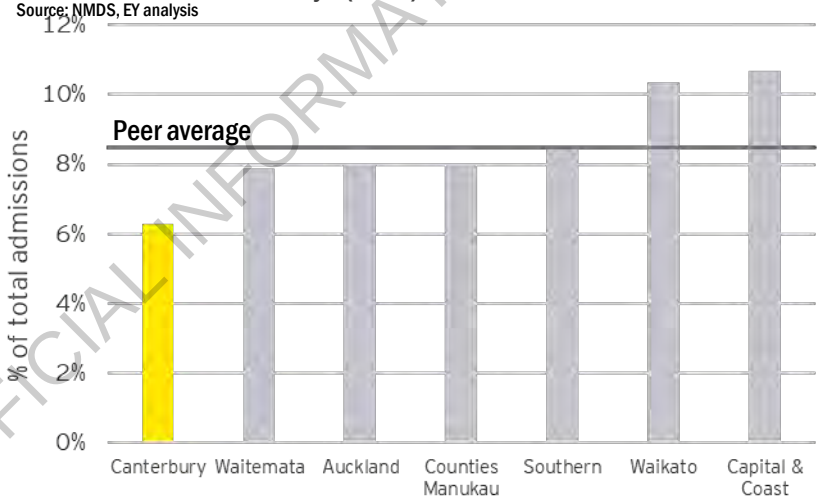


Hospital readmissions *cont'd*

- This excludes admissions to Canterbury ED where they were discharged from another DHB within the time frame.
- Readmissions are the lowest of all peer DHBs when only those readmitted in the DHB they were discharged from are included.

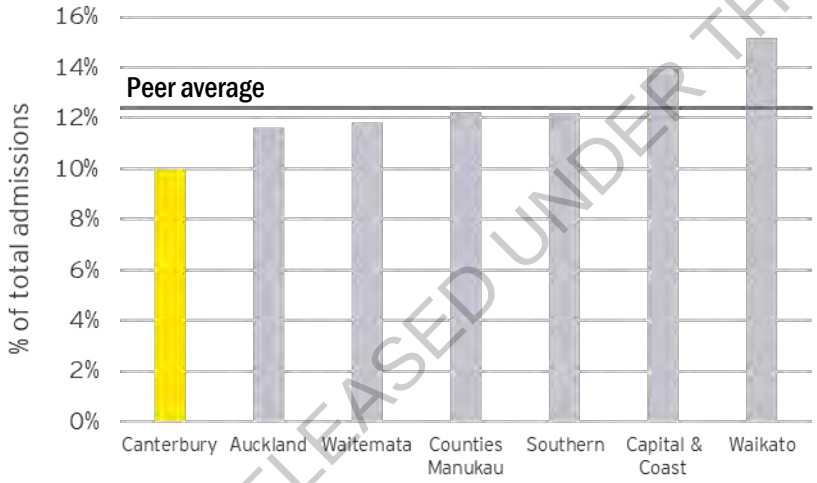
Readmissions within 7 days (FY18)

Source: NMDS, EY analysis



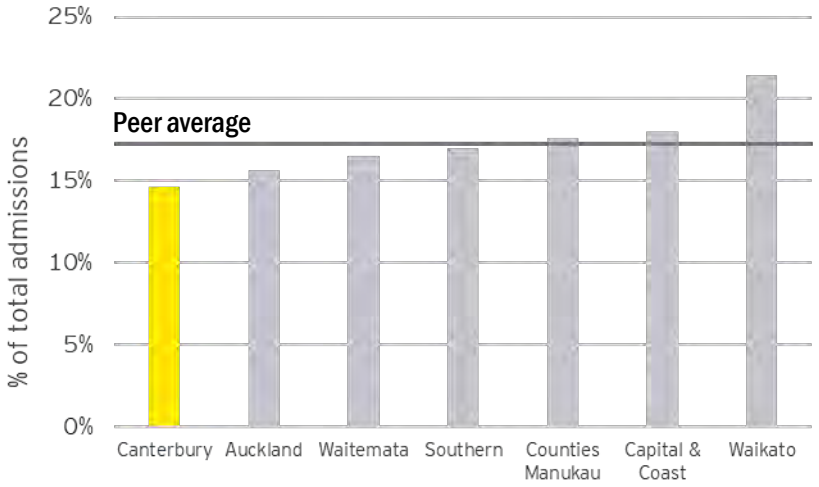
Readmissions within 14 days (FY18)

Source: NMDS, EY analysis



Readmissions within 28 days (FY18)

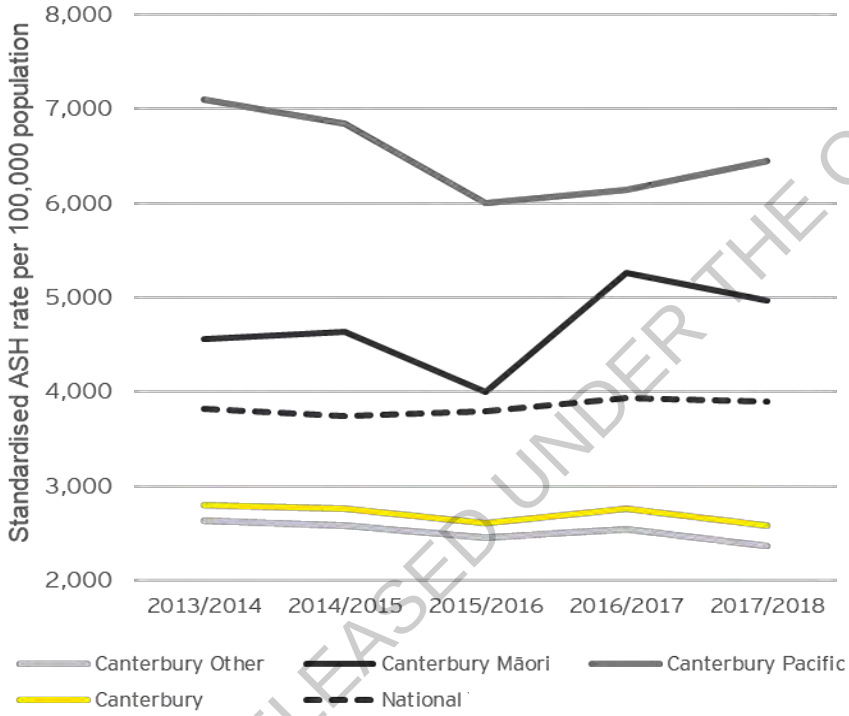
Source: NMDS, EY analysis



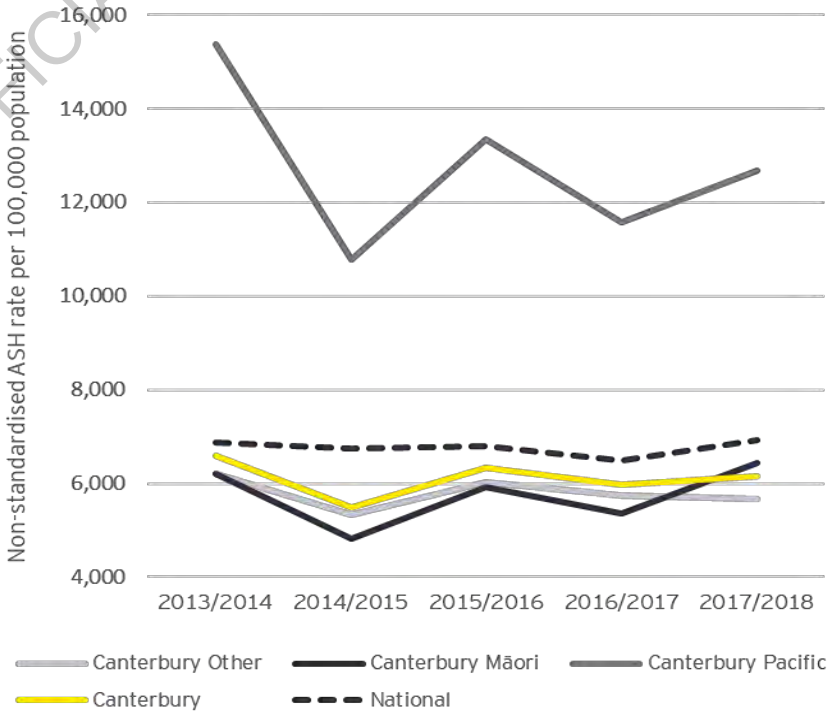
Ambulatory-sensitive hospitalisations (ASH)

- The Canterbury total population rate is lower than the national total population rate for people aged 45-64 years, but lower than Māori and Pacific rates.
- The Canterbury rate for those aged 00-04, is slightly below the National average. The rate for Pacific is far higher than Maori and other, but is likely influenced by relatively low population levels.
- Canterbury, with an ASH rate of ~2,590 for ages 45-64 is low compared to comparator DHBs which have rates ranging from ~3,020 in Southern to ~4,680 in Counties Manukau.

Standardised ASH Rate for all conditions, ages 45-64



Non-standardised ASH Rate for all conditions, ages 00-04

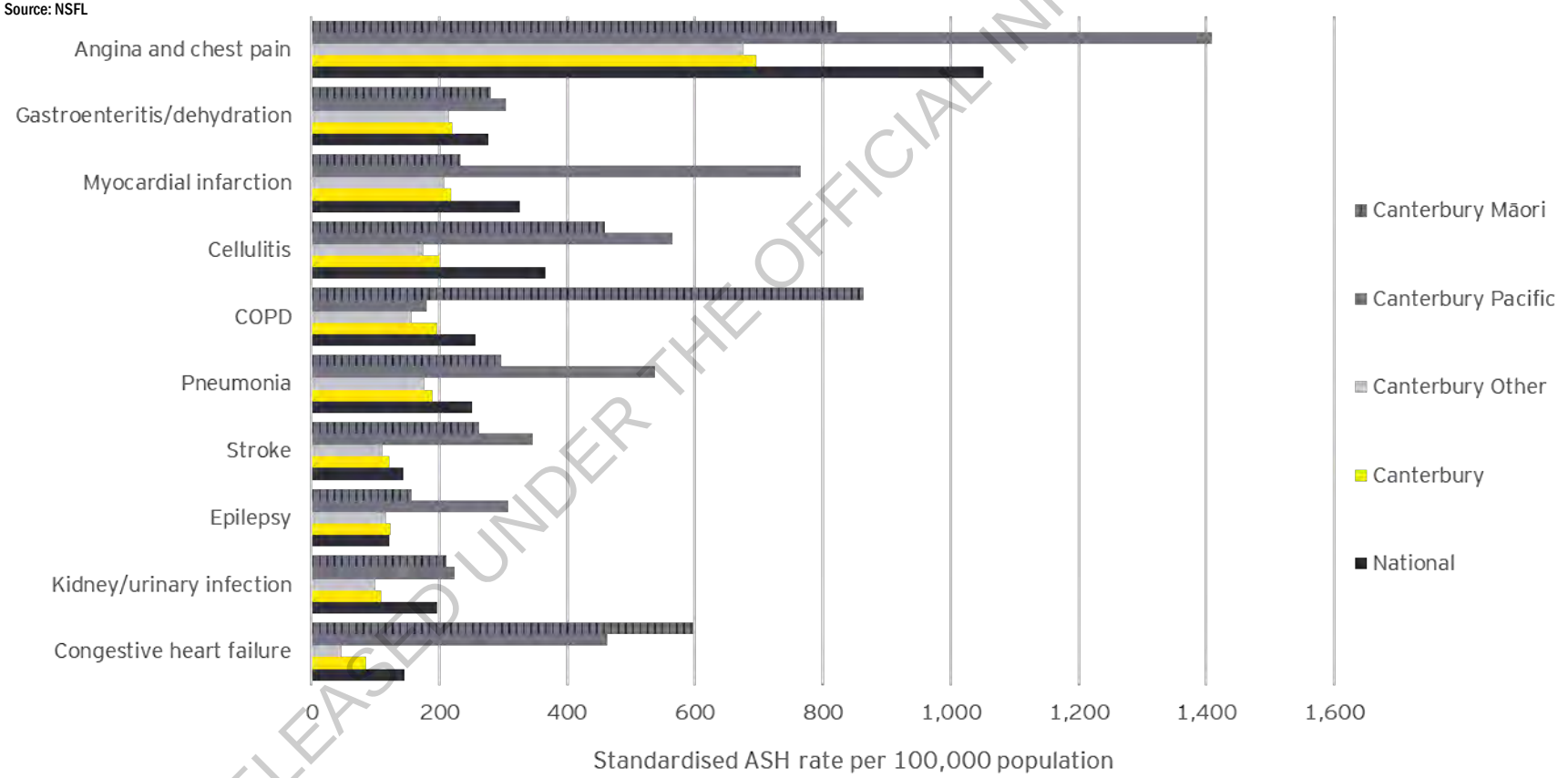


Ambulatory-sensitive hospitalisations *cont'd*

- ASH rates for Māori/Pacific are far higher than both Canterbury and National rate for many conditions, especially congestive heart failure, COPD, angina and chest pain, and pneumonia.
- For Canterbury overall, rates are at or below the national rate.

Standardised ASH Rate for top 10 conditions, ages 45-64, 12 months to end September 2018

Source: NSFL

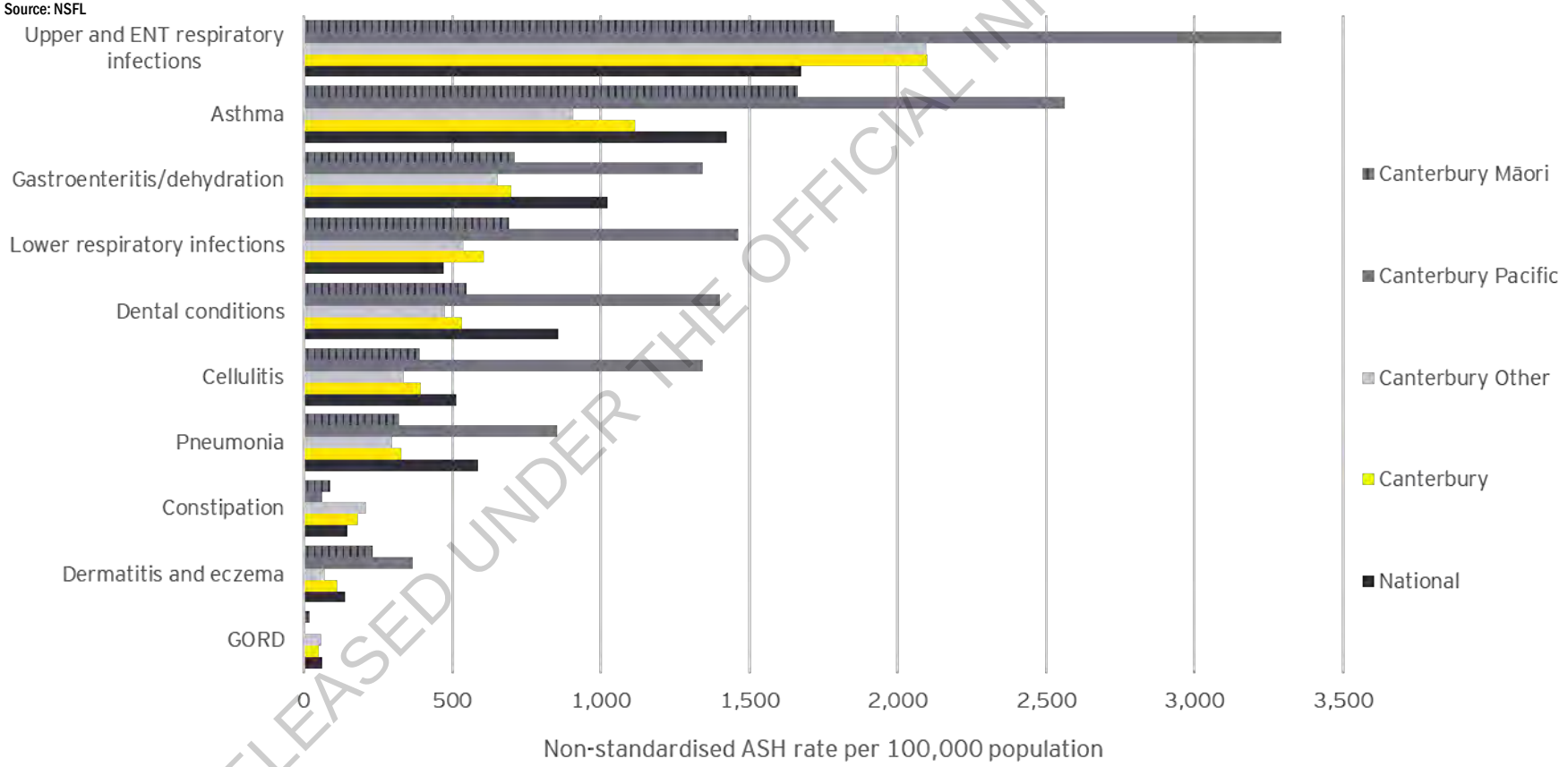


Ambulatory-sensitive hospitalisations *cont'd*

- ASH rates for Pacific are far higher than both Canterbury and National rates for many conditions, especially respiratory infections, asthma, dental conditions, and cellulitis.
- For upper and ENT respiratory infections, rates are particularly high for all in Canterbury, ~25% higher than national.

Non-standardised ASH Rate for top 10 conditions, ages 00-04, 12 months to end September 2018

Source: NSFL



Hospitalisations for long-term conditions

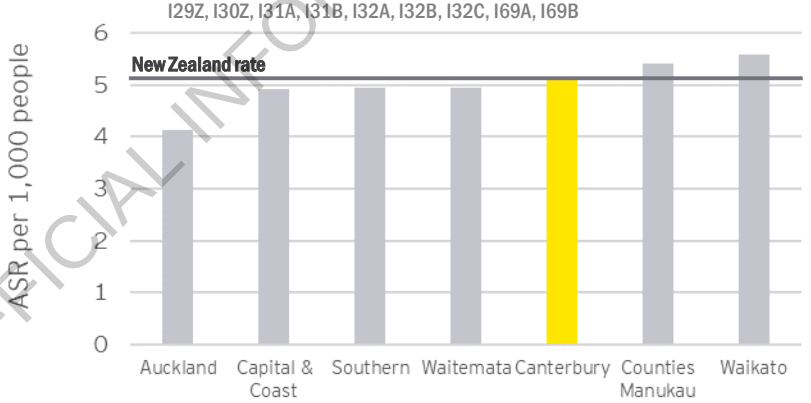
► Canterbury is performing at or below the national rate for the long-term conditions of unstable angina, arthritis, diabetes and asthma.

Unstable angina hospitalisations (140 events)

DRG codes: F72A, F72B

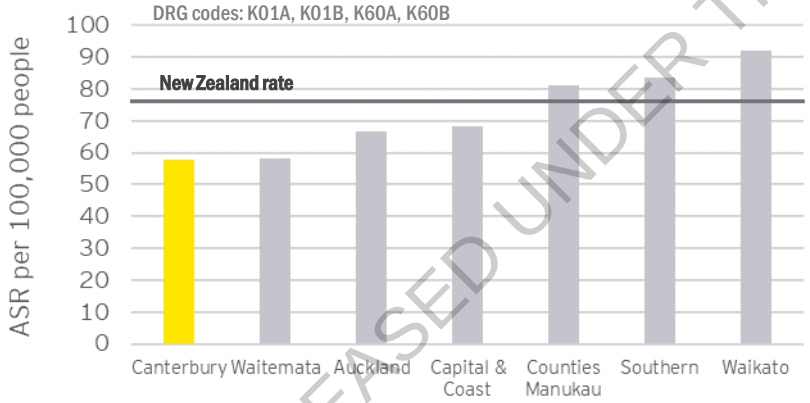
Arthritis hospitalisations (2,910 events)

DRG codes: I01A, I01B, I03A, I03B, I04A, I04B, I05A, I05B, I29Z, I30Z, I31A, I31B, I32A, I32B, I32C, I69A, I69B



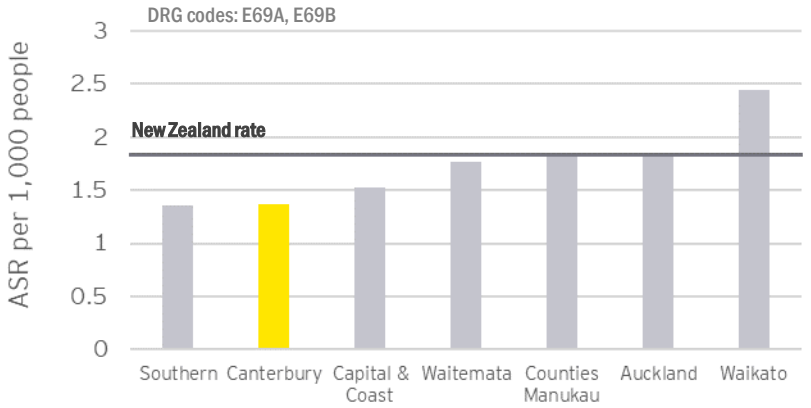
Diabetes hospitalisations (301 events)

DRG codes: K01A, K01B, K60A, K60B



Asthma hospitalisations (752 events)

DRG codes: E69A, E69B

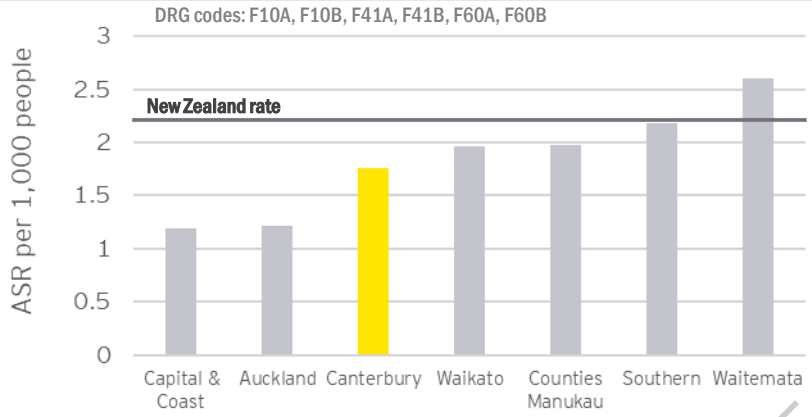


Source: NMDS, EY analysis, FY18
Note: Events numbers are Canterbury only

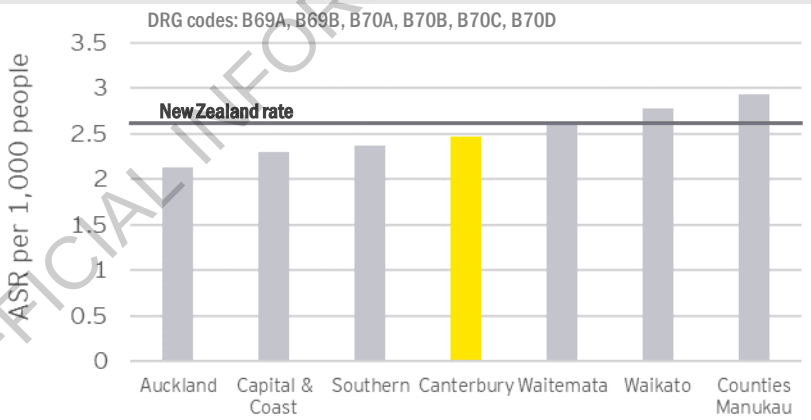
Hospitalisations for long-term conditions *cont'd*

- Canterbury is below average for all these long-term conditions including myocardial infarction, stroke, COPD and CHF, and is performing similarly to comparator DHBs.

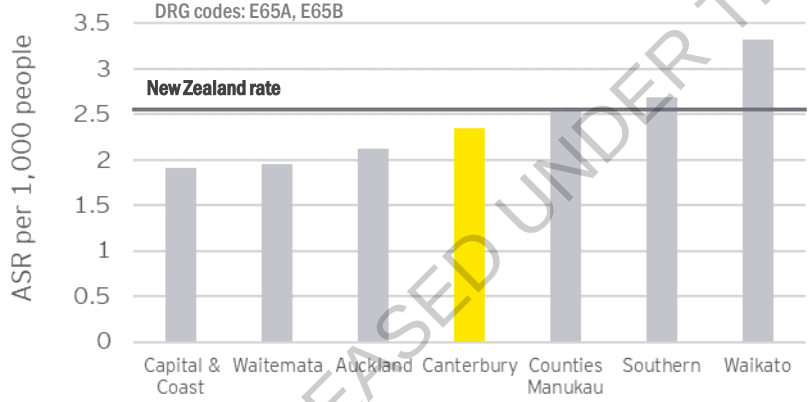
Myocardial infarction hospitalisations (1,013 events)



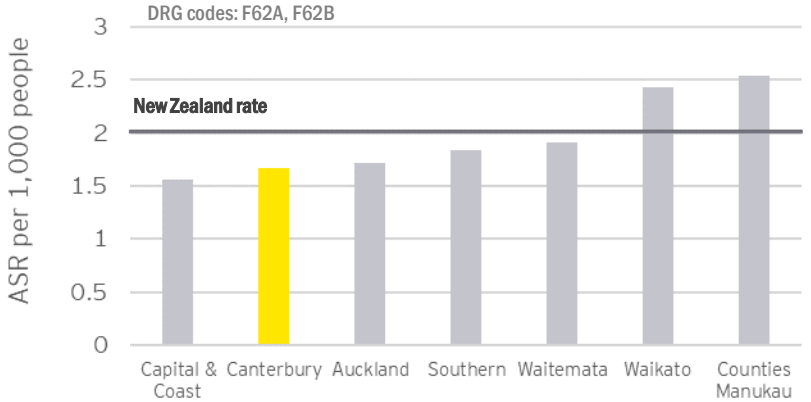
Stroke hospitalisations (1,434 events)



COPD hospitalisations (1,347 events)



CHF hospitalisations (977 events)



Source: NMDS, EY analysis, FY18
Note: COPD stands for chronic obstructive pulmonary disease, and CHF for congestive heart failure

Hospitalisation rates for Māori for select long-term conditions

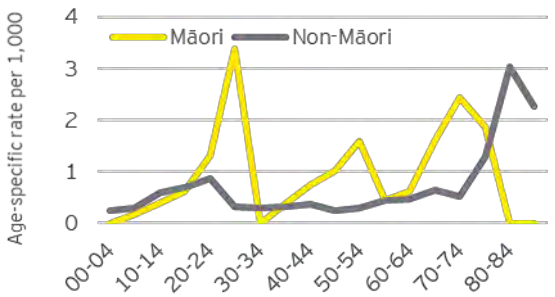
- Māori are much more likely to be hospitalised than non-Māori for most conditions including diabetes, CHF, COPD, and asthma, and are being admitted at younger ages

Diabetes hospitalisations

Equity: Māori 1.8 times more likely to be hospitalised than non-Māori

Volume: Non-Māori account for ~87% of admissions

DRG codes: K01A, K01B, K60A, K60B

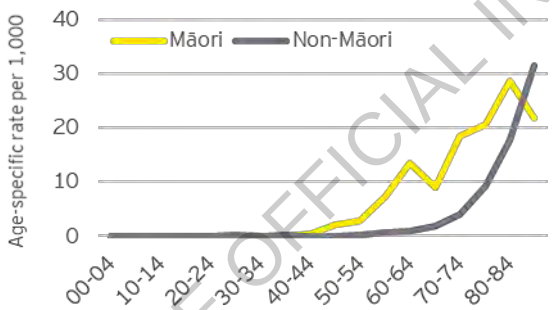


CHF hospitalisations

Equity: Māori 2.7 times more likely to be hospitalised than non-Māori

Volume: Non-Māori account for ~89% of admissions

DRG codes: F62A, F62B

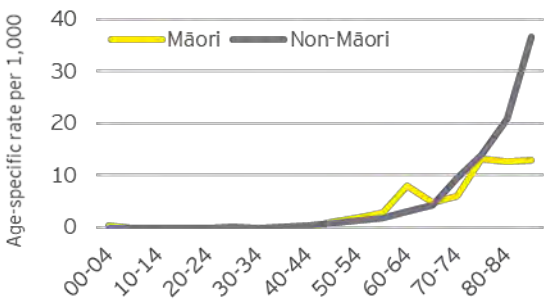


Stroke hospitalisations

Equity: Non-Māori 1.1 times more likely to be hospitalised than Māori

Volume: Non-Māori account for ~96% of admissions

DRG codes: B69A, B69B, B70A, B70B, B70C, B70D

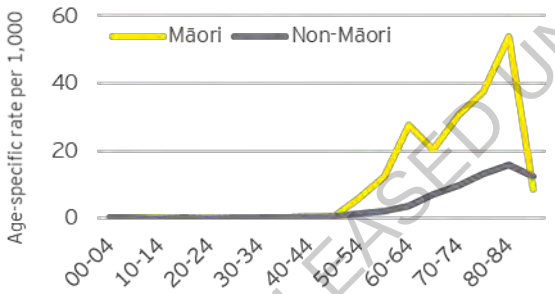


COPD hospitalisations

Equity: Māori 3.5 times more likely to be hospitalised than non-Māori

Volume: Non-Māori account for ~86% of admissions

DRG codes: E65A, E65B

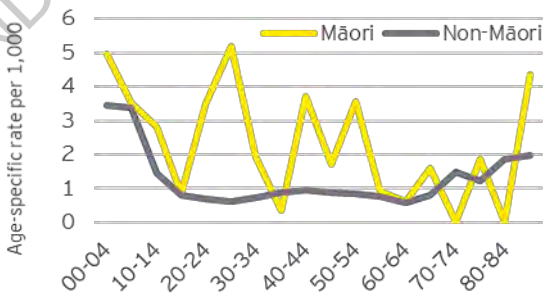


Asthma hospitalisations

Equity: Māori 2.0 times more likely to be hospitalised than non-Māori

Volume: Non-Māori account for ~81% of admissions

DRG codes: E69A, E69B

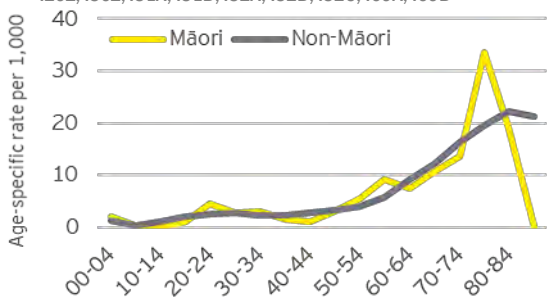


Arthritis hospitalisations

Equity: Māori are as likely to be hospitalised as non-Māori

Volume: Non-Māori account for ~94% of admissions

DRG codes: I01A, I01B, I03A, I03B, I04A, I04B, I05A, I05B, I29Z, I30Z, I31A, I31B, I32A, I32B, I32C, I69A, I69B

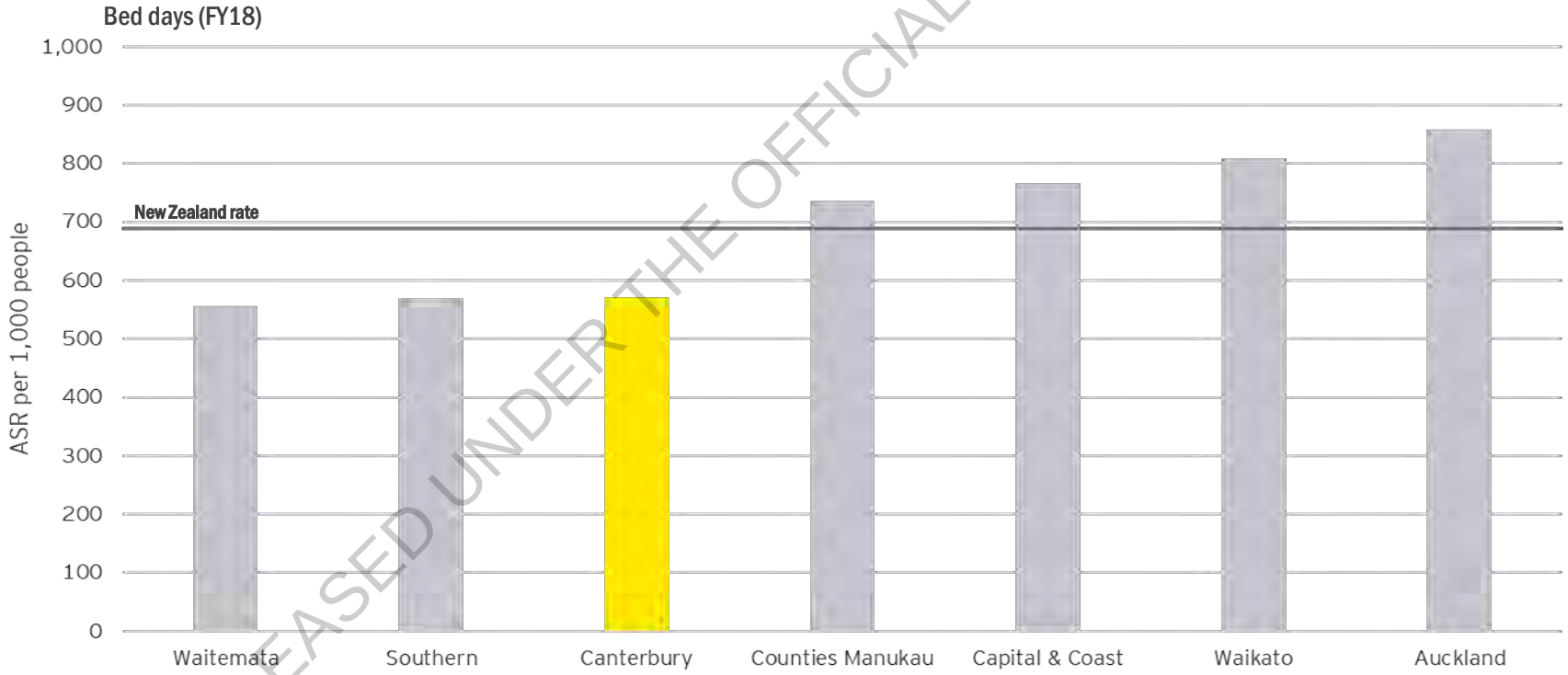


Source: NMDS, EY analysis, FY18

Note: COPD stands for chronic obstructive pulmonary disease, and CHF for congestive heart failure

Length of stay benchmarking

- Canterbury had ~122,000 discharges with an average length of stay of 2.7 days, compared to a national average of 2.8 days, or if day patients are excluded, Canterbury has an ALOS of 4.5, compared to the national ALOS of 4.9.
- The rate of bed days per 1,000 people for Canterbury is lower than the national average, and similar or lower than comparable DHBs.

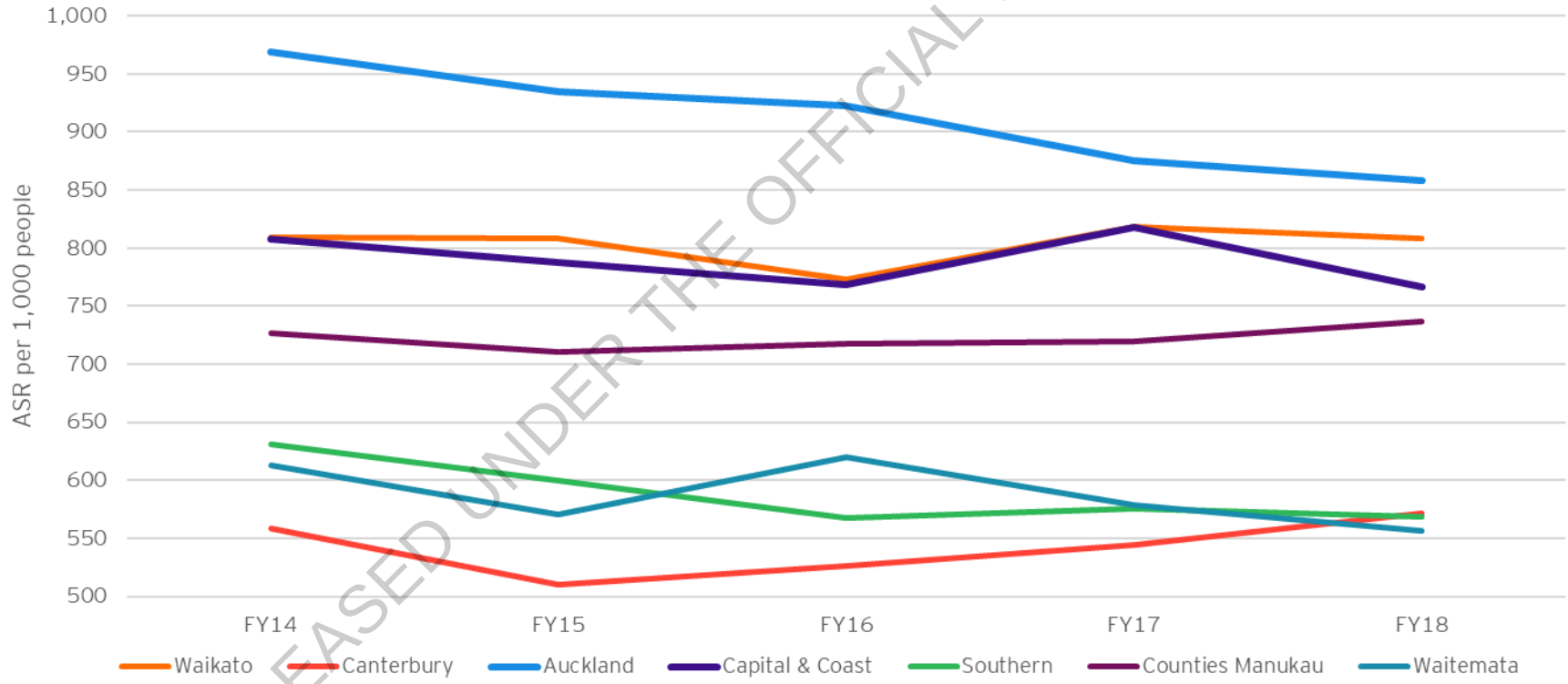


Source: NMDS, EY analysis

Length of stay benchmarking *cont'd*

- Canterbury has had the lowest rate of bed days previously until FY18 where the rate bed days increased slightly, and Waitemata and Southern became slightly lower than Canterbury.
- In FY14 Canterbury had an average length of stay of 2.5 days. From FY15 to FY17 this had decreased slightly to 2.3, before increasing to 2.4 in FY18.

Bed days over time



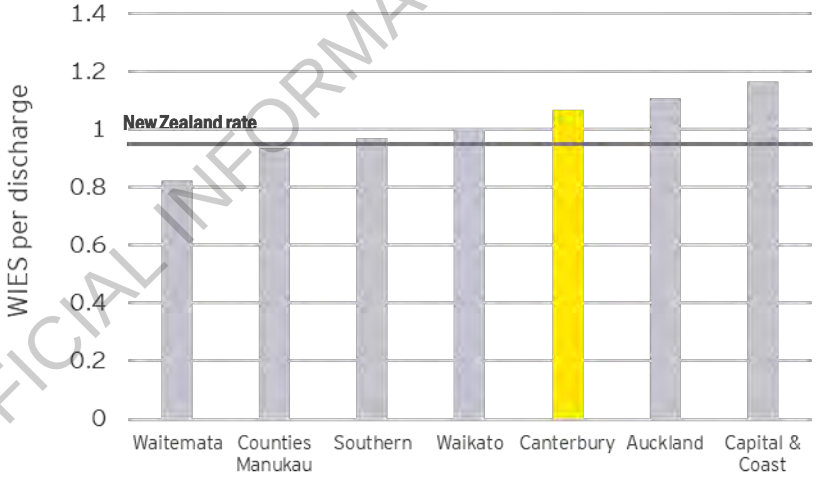
Source: NMDS, EY analysis

WIES per discharge

- Canterbury has above average WIES per discharge compared to the national average, and this holds for both acute and elective discharges.

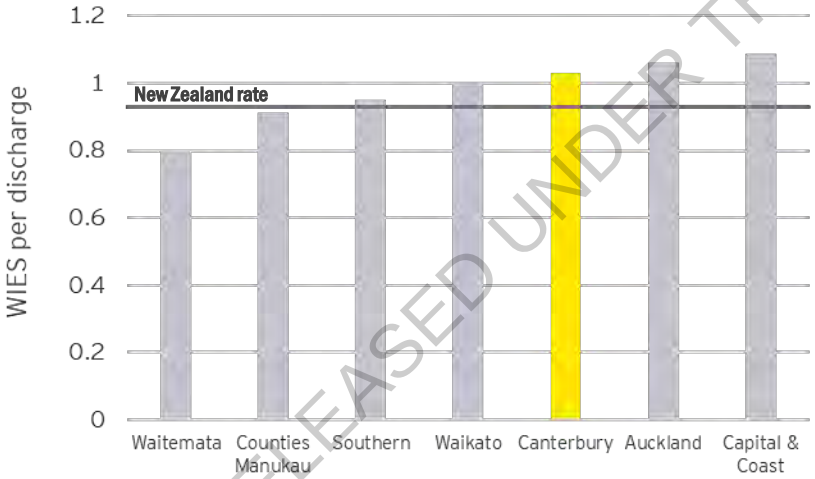
WIES per discharge (FY18)

Source: NMDS, EY analysis



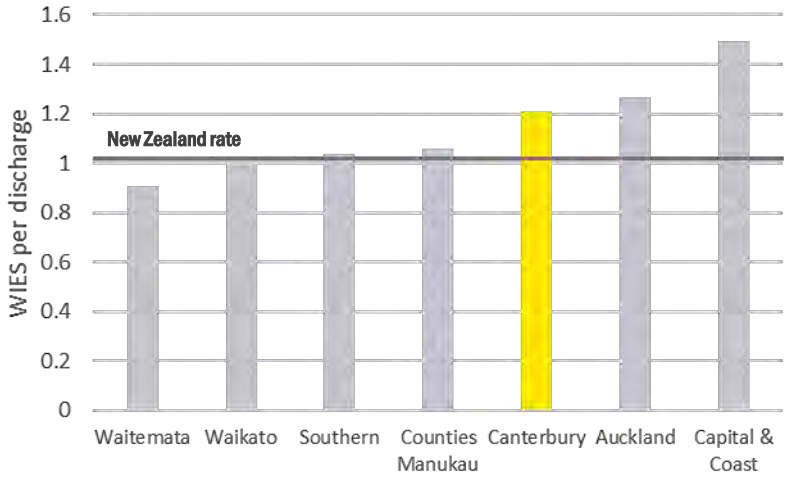
WIES per discharge - acute (FY18)

Source: NMDS, EY analysis



WIES per discharge – elective (FY18)

Source: NMDS, EY analysis



WIES per discharge *cont'd*

- Canterbury has ~3,700 AT&R discharges with an average WIES of 2.8, similar to the peer average.
- Canterbury has ~53,000 medical discharges with an average WIES of 0.78, slightly higher than the national average of 0.71.
- Canterbury has ~47,000 surgical discharges with an average WIES of 1.18, just above the national average of 1.14.

WIES per discharge – AT&R (FY18)

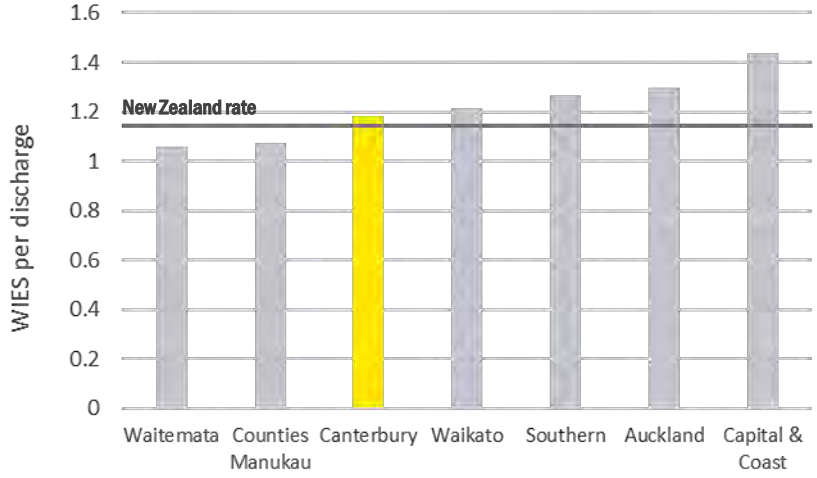
Source: NMDS, EY analysis

WIES per discharge - medical (FY18)

Source: NMDS, EY analysis

WIES per discharge - surgical (FY18)

Source: NMDS, EY analysis

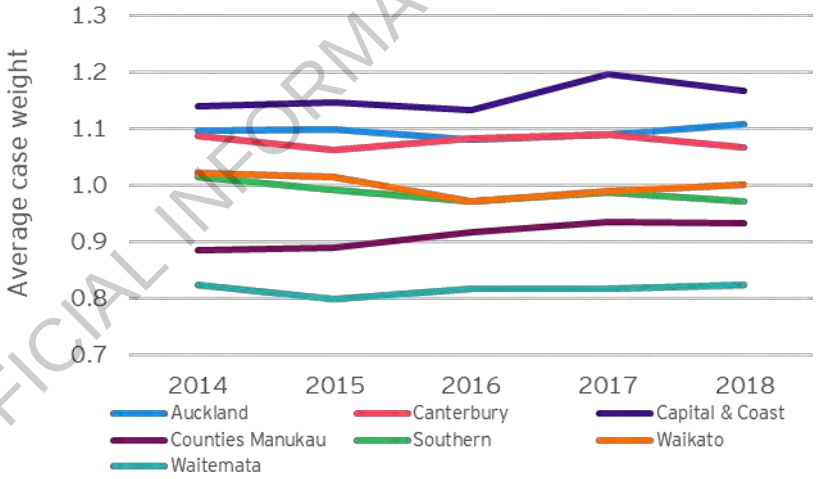


WIES per discharge *cont'd*

- The average case weight per discharge over all and for acute and elective discharges has remained fairly constant over time at a similar level to Auckland DHB.

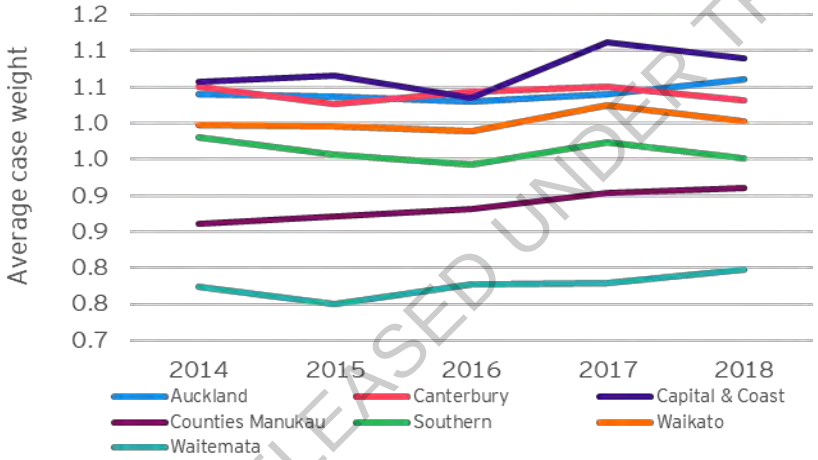
WIES per discharge

Source: NMDS, EY analysis



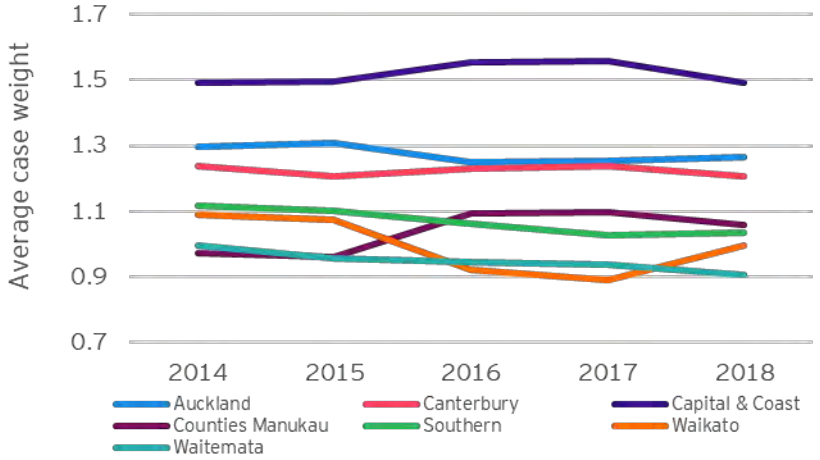
WIES per discharge - acute

Source: NMDS, EY analysis



WIES per discharge - elective

Source: NMDS, EY analysis

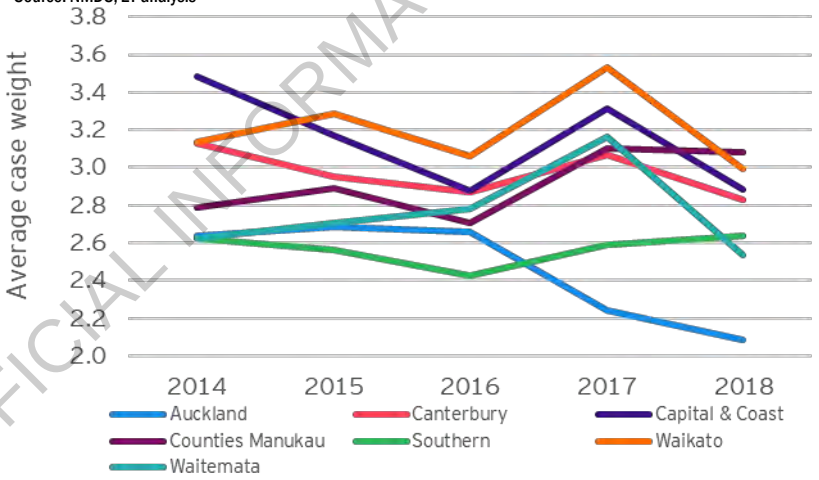


WIES per discharge *cont'd*

- The average case weight per discharge for AT&R discharges has fallen slightly over time for Canterbury. In FY14, Canterbury had a case weight per discharge of 3.1, which had fallen to 2.8 by FY18.
- Slight variations in the average case weights for medical and surgical discharges, but are largely static over time sitting at just below 0.8 per discharge and 1.2 respectively.

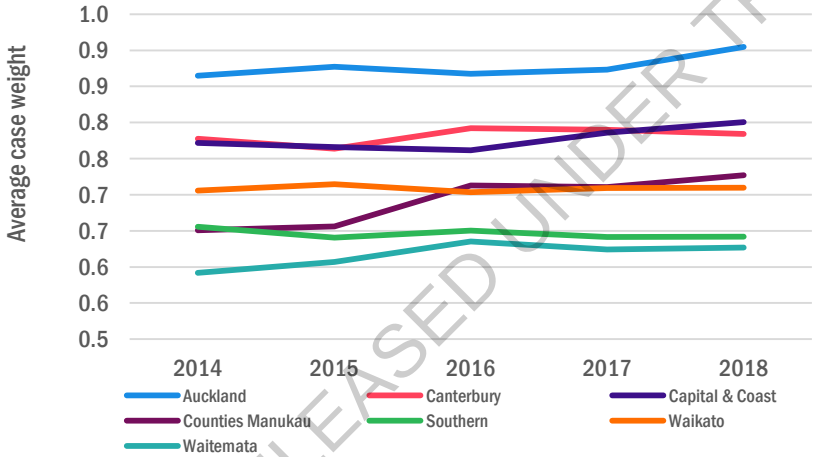
WIES per discharge – AT&R

Source: NMDS, EY analysis



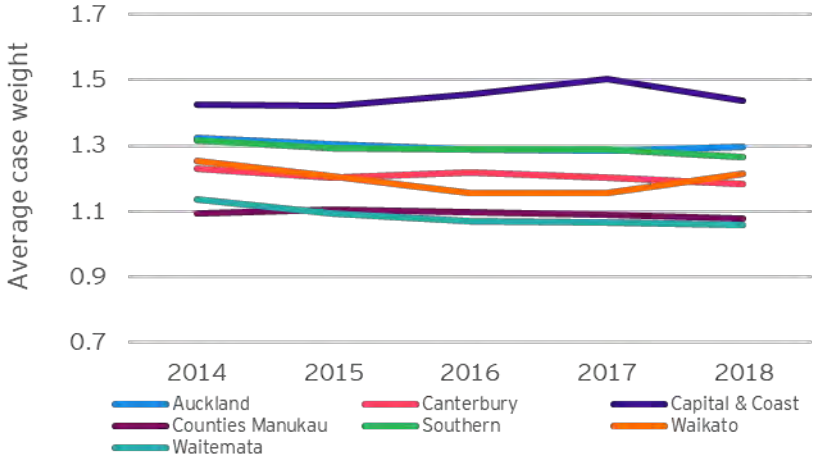
WIES per discharge - medical

Source: NMDS, EY analysis



WIES per discharge - surgical

Source: NMDS, EY analysis

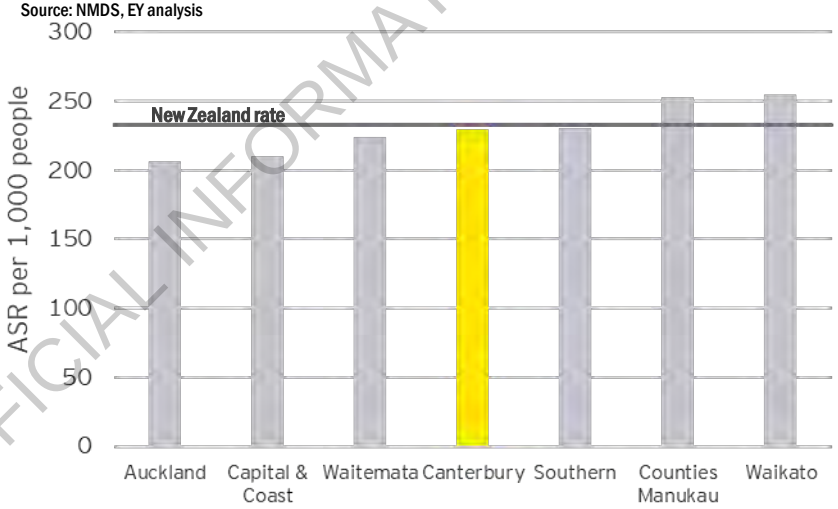


Case weighted discharges

- Canterbury has around average rate of case-weighted discharges, as are both acute, with elective case weighted discharges being slightly below average.

Case weighted discharges (FY18)

Source: NMDS, EY analysis

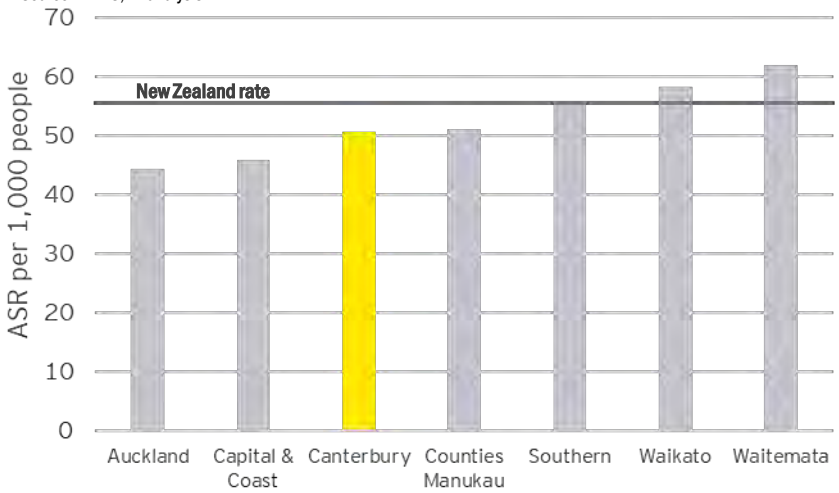


Case weighted discharges - acute (FY18)

Source: NMDS, EY analysis

Case weighted discharges - elective (FY18)

Source: NMDS, EY analysis

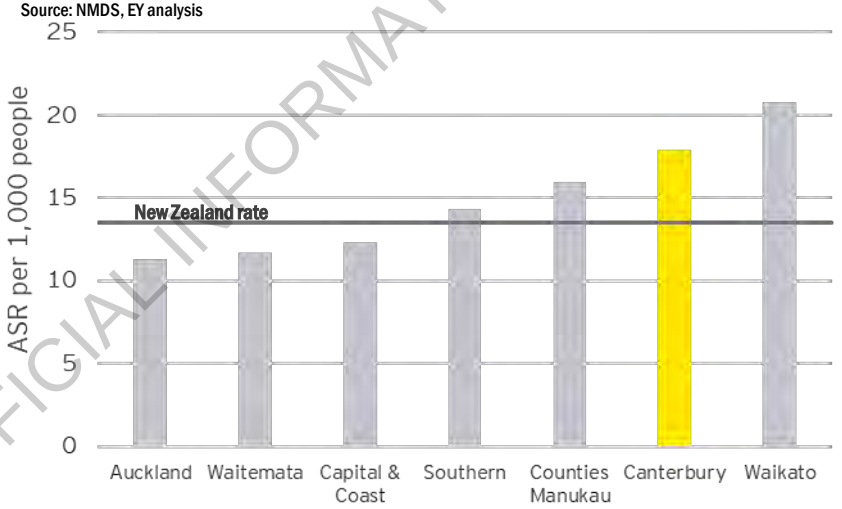


Case weighted discharges *cont'd*

- Canterbury's rate of AT&R case weighted discharges is higher than the national average and significantly higher than five of the comparator DHBs.
- Canterbury has the lowest case weighted discharge rate for medical discharges.
- The rate for surgical discharges is also slightly lower than the national average, however Waitemata, Capital and Coast, and Auckland all have lower rates of case weighted discharges.

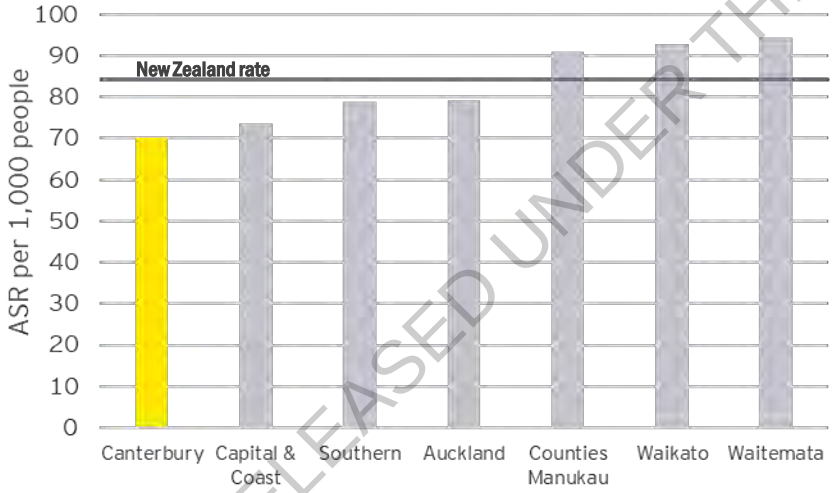
Case weighted discharges – AT&R (FY18)

Source: NMDS, EY analysis



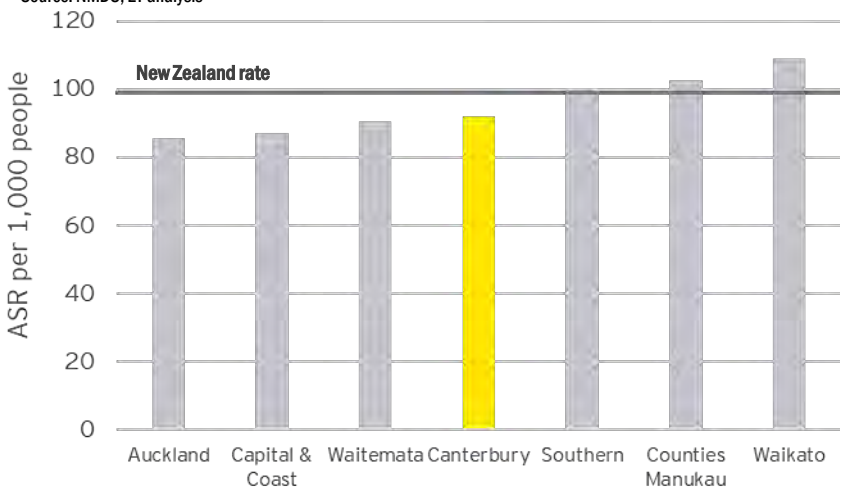
Case weighted discharges - medical (FY18)

Source: NMDS, EY analysis



Case weighted discharges - surgical (FY18)

Source: NMDS, EY analysis

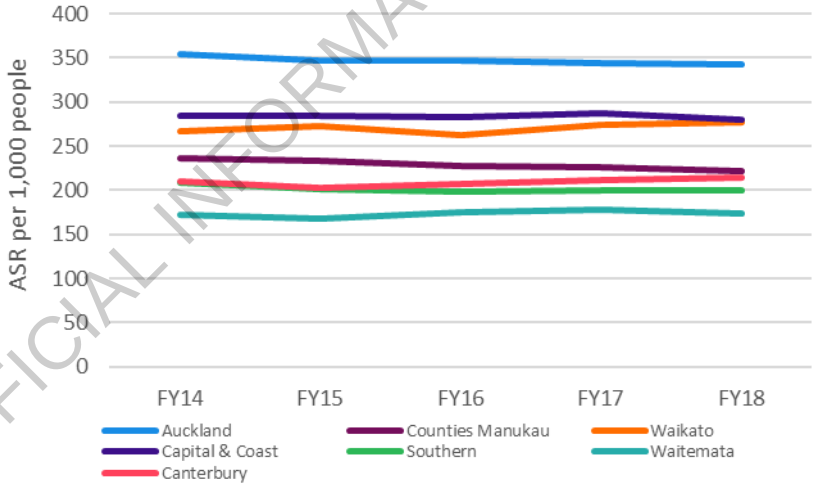


Case weighted discharges *cont'd*

- Canterbury has maintained their position as the third lowest among compared DHBs for case weighted discharges overall and for acute case weighted discharges.
- The trend overall has been fairly constant over time, however in Canterbury both overall and acute case weighted discharges have had a slight increase in the last few years.
- In FY14 Canterbury had the second lowest rate of elective case weighted discharges after Waitemata, but by FY18 Canterbury dropped to fourth after Counties Manukau, Southern, and Waitemata.

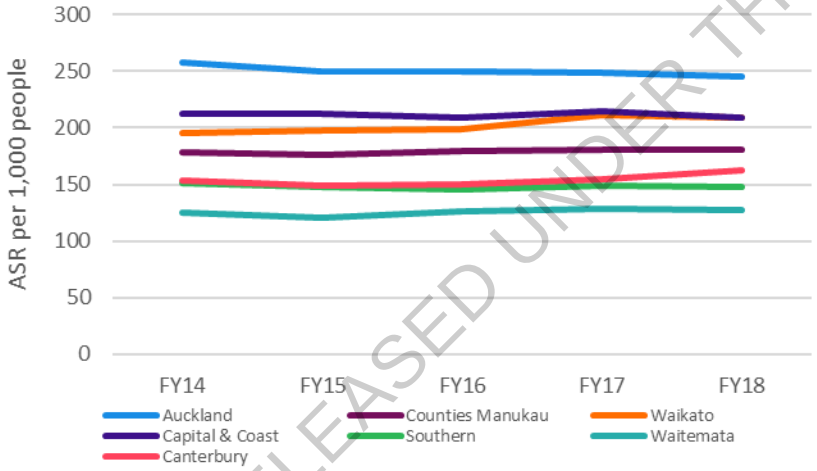
Case weighted discharges

Source: NMDS, EY analysis



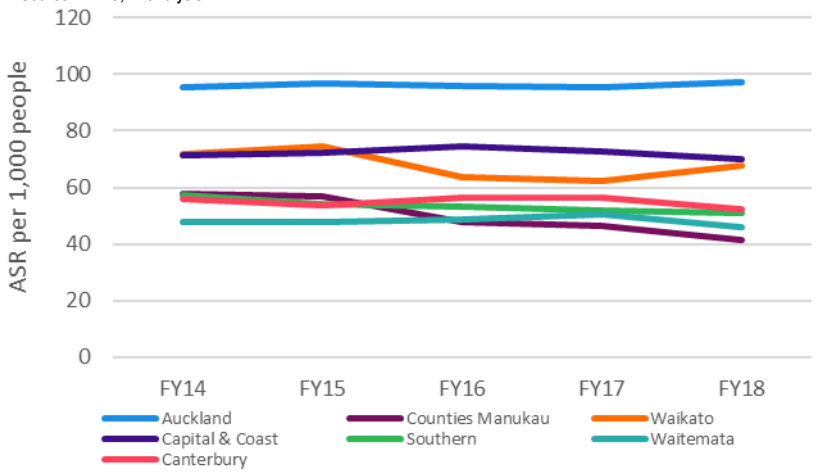
Case weighted discharges – acute

Source: NMDS, EY analysis



Case weighted discharges - elective

Source: NMDS, EY analysis

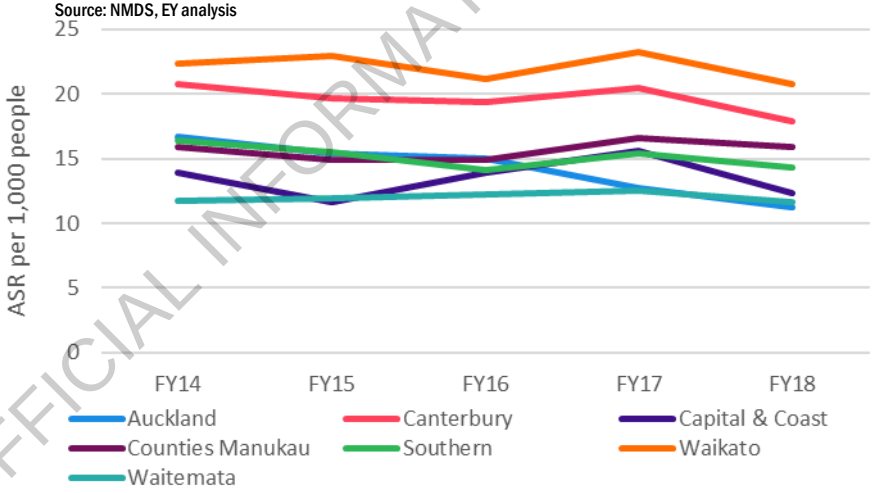


Case weighted discharges *cont'd*

- Until FY16 Canterbury had the lowest rate of AT&R case weighted discharges. After FY16 Canterbury had a sharp increase in the rate of case weighted discharges bringing them to among the highest rates of compared DHBs.
- For medical and surgical case weighted discharges Canterbury has maintained their position with the second and fourth lowest rates respectively.

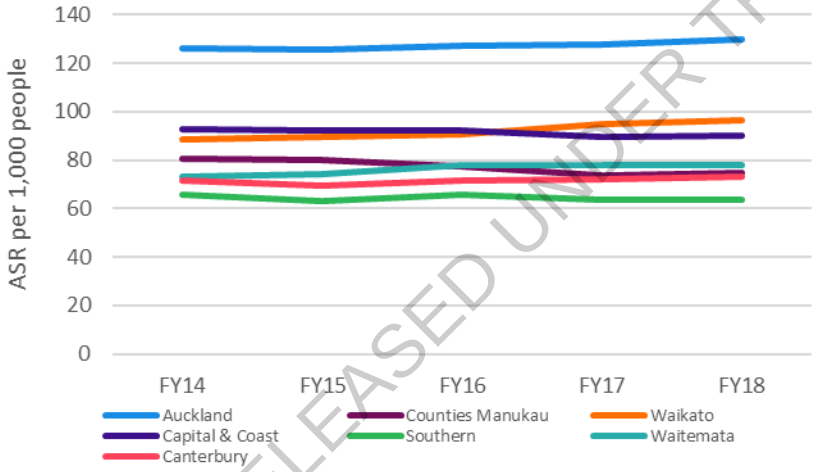
Case weighted discharges – AT&R

Source: NMDS, EY analysis



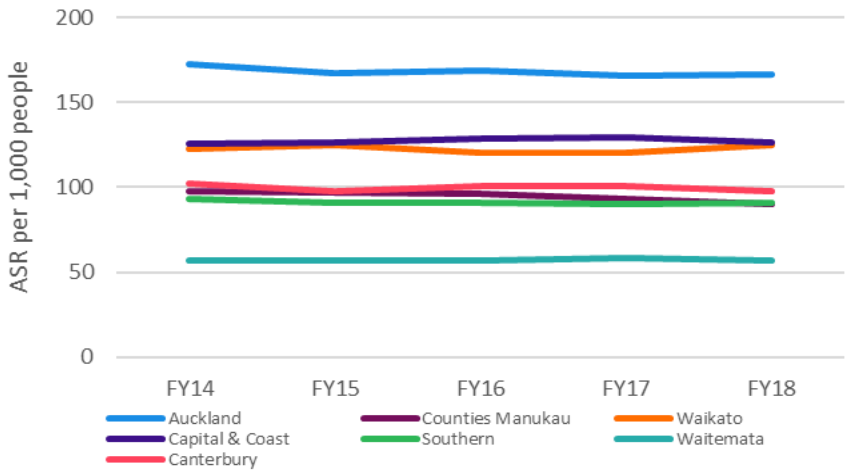
Case weighted discharges - medical

Source: NMDS, EY analysis



Case weighted discharges - surgical

Source: NMDS, EY analysis

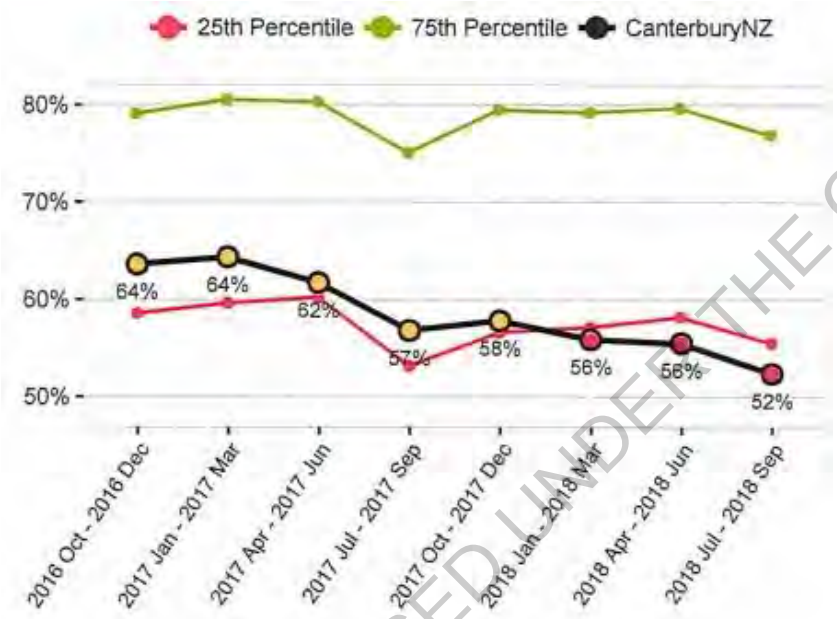


HRT Benchmarking

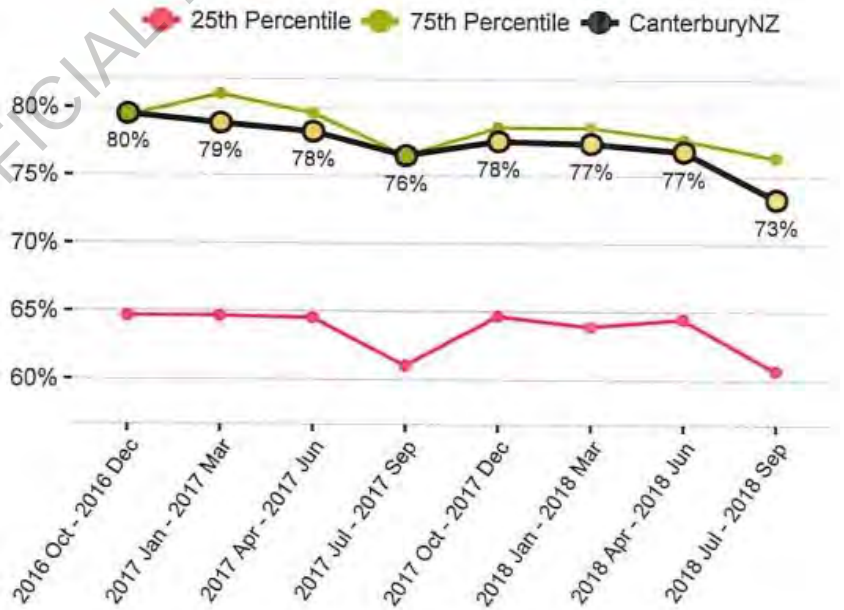
ED waiting times

- In the past three quarters Canterbury has fallen below the 25th percentile for % of ED patients seen within the clinically recommended time.* Canterbury saw 56,204 patients within recommended times, equating to 55% of total presentations, around average compared to HRT peers. However this has been declining over time, recently falling below the 25th percentile.
- For the % of ED waiting time within 4 hours, Canterbury DHB is around the 75th percentile. 77,363 patients were seen within 4 hours, 76% of total presentations – one of the highest among peer DHBs.

Percentage of ED patients seen within clinically recommended time



Percentage of ED waiting time within 4 hours



*Clinically recommended time is based on triage time to time of first care given, treatment or diagnostic started. The benchmark times for each triage category are:

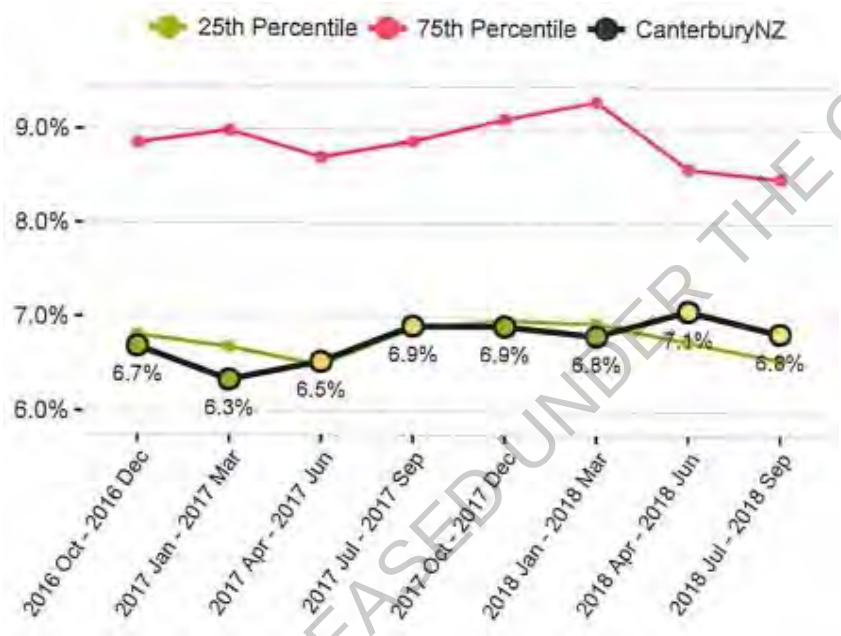
Category 1: seen within seconds, calculated as less than or equal to 2 minutes
Category 2: seen within 10 minutes
Category 3: seen within 30 minutes
Category 4: seen within 60 minutes
Category 5: seen within 120 minutes

Source: HRT 2018

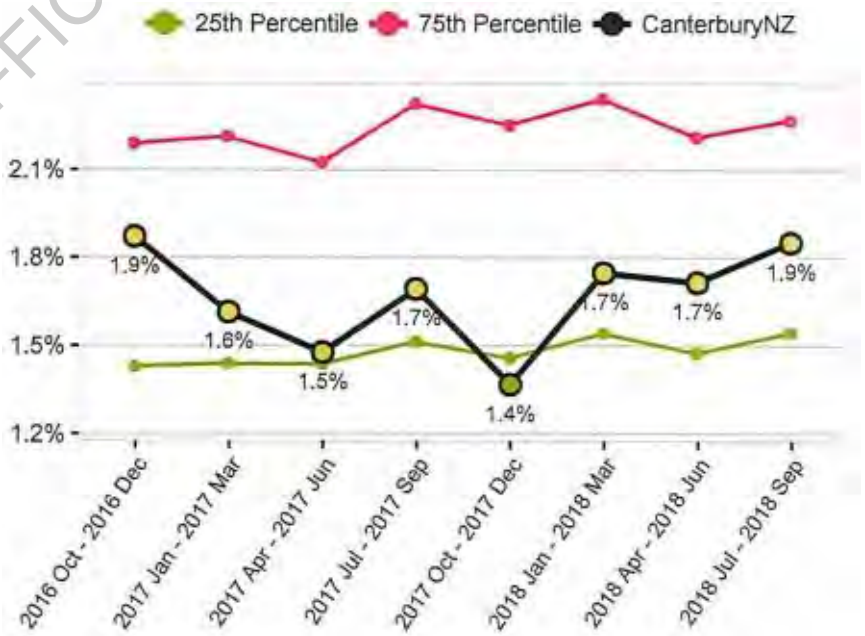
Hospital Re-presentations

- Canterbury is consistently around the 25th percentile for percentage of inpatients presenting to ED within 14 days of discharge. 6.9% of total hospital hospitalisations presented to ED – 7,164 presentations. This is around average among peer DHBs.
- Canterbury has been between the 25th and 50th percentiles for percentage of non-admitted ED patients returning to ED within 24 hours. 916 returned within 24 hours (1.7% of total presentations), which is among the lowest compared to peer DHBs.

Percentage of inpatients presenting to ED within 14 days of discharge



Percentage of non-admitted ED patients returning to ED within 24 hours

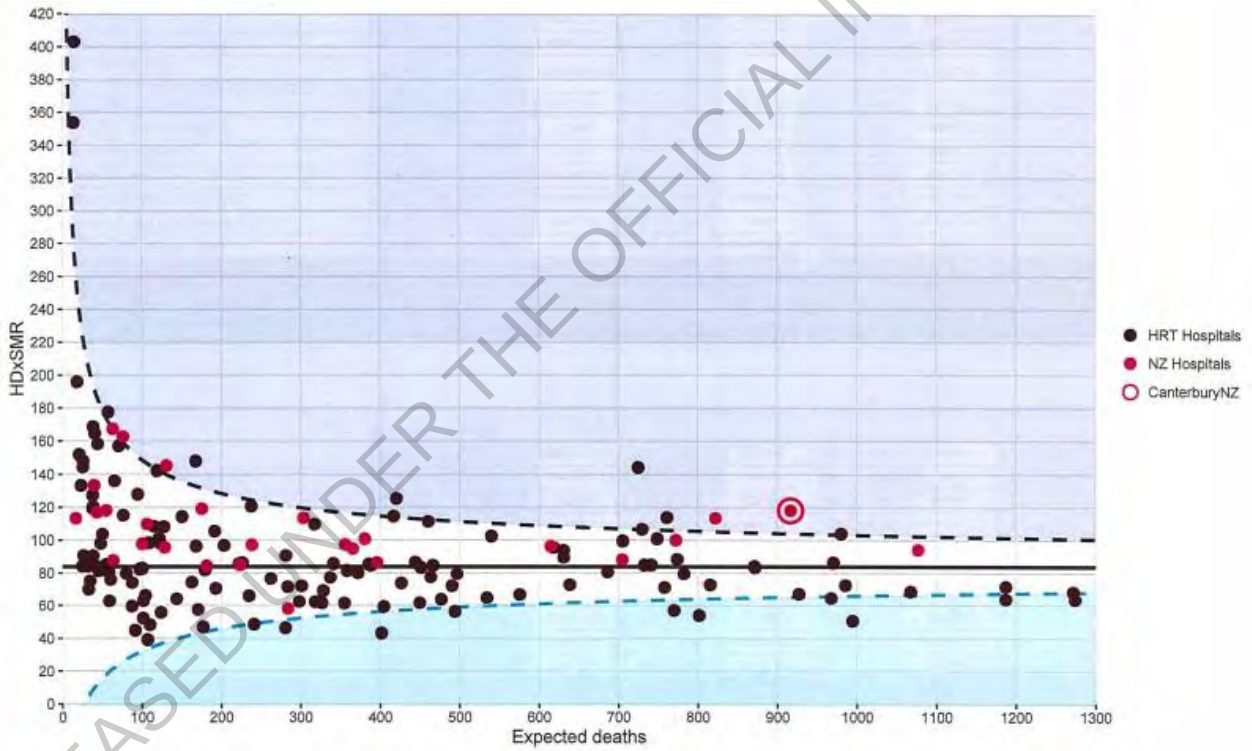


Source: HRT 2018

In-hospital mortality rates

- Canterbury has a high level on in-hospital mortality.

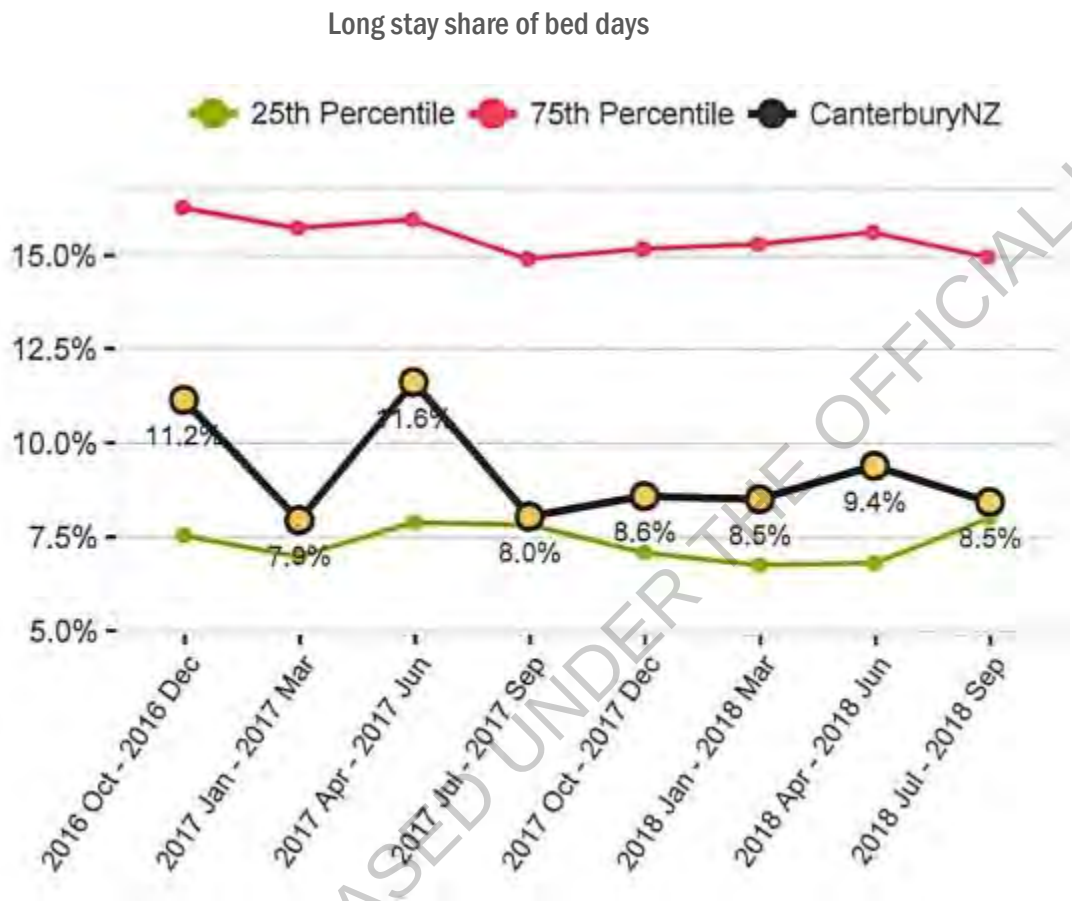
Standardised mortality rates



Funnel is based on 2 standard deviations from the HRT rate, adjusted for overdispersion.

Source: HRT 2018

Length of stay – long stays



- Canterbury DHB is around the 25th to 50th percentile with around 8.7% of bed days being long stay (16,508 long stay bed days). This is one of the lower long stay percentages of peer DHBs.

Source: HRT 2018

Relative stay index

- Canterbury has a fairly high relative stay index, however is making some small gains.

Relative stay index

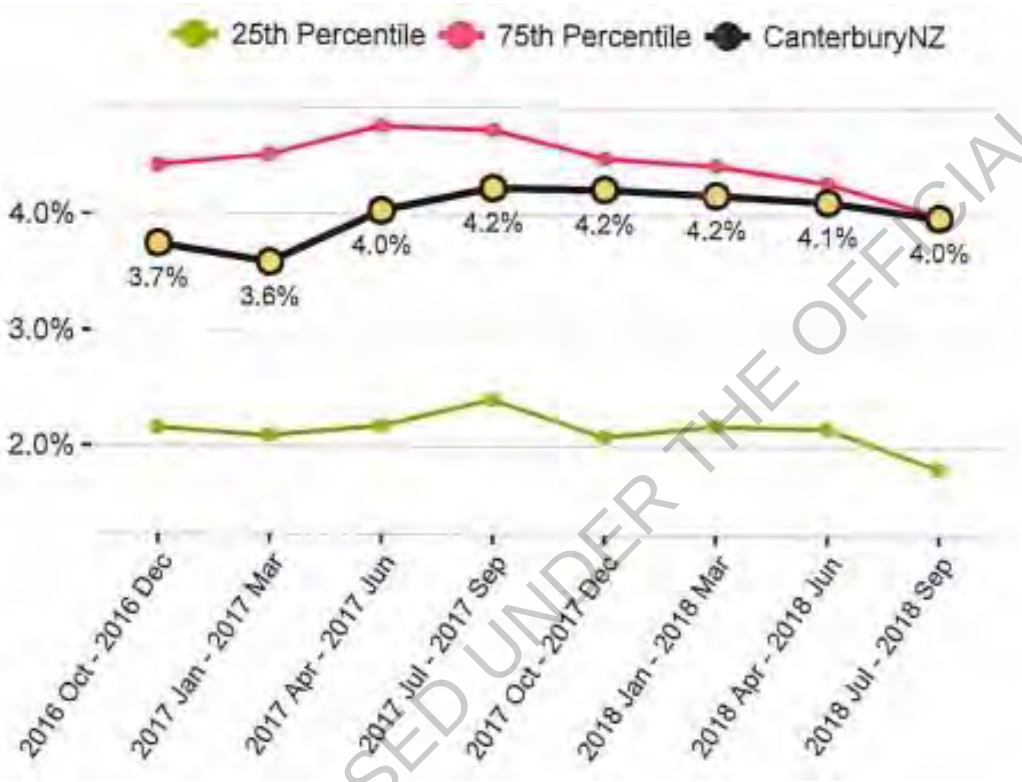
Episodes	5,253	61,501	67,589	102,413	93,205	84,453	64,220	104,007	58,432	89,712	71,245	64,766	114,091	63,924	71,032	55,797	81,015	79,508	103,892	102,020
RSI	74%	77%	81%	83%	84%	85%	86%	87%	89%	89%	90%	90%	95%	95%	97%	97%	100%	100%	101%	101%

* Only includes HRT acute care type episodes. Excludes error DRGs, episodes with HITH care and episodes in mental health (U) DRGs.

Source: HRT 2018

Complications during inpatient care

Rate of major hospital-acquired complications



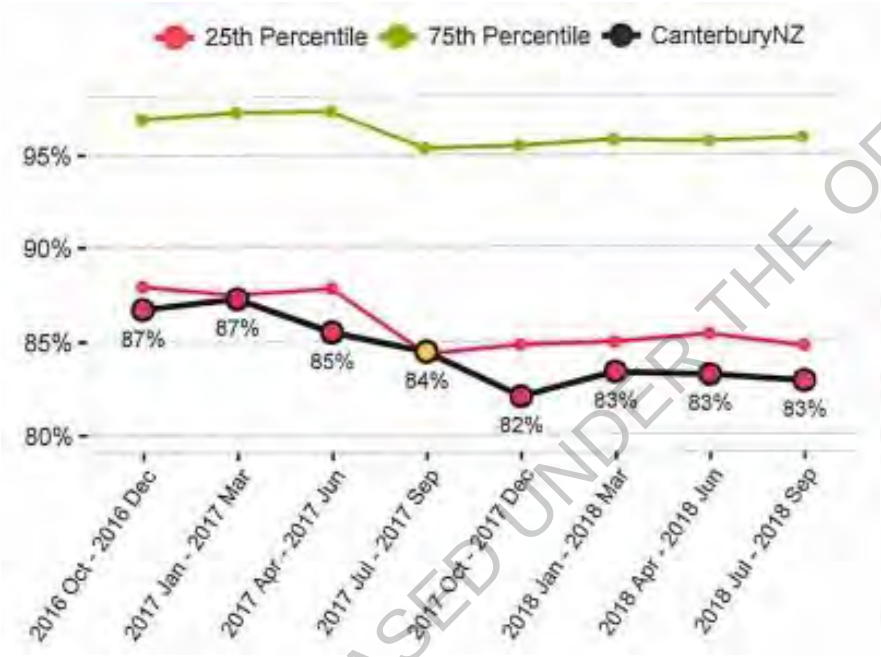
- Canterbury DHB has been approaching the 75th percentile with, 952 episodes with a major hospital-acquired complications – 4.1% of total discharges. This is around average compared to peer DHBs.

Source: HRT 2018

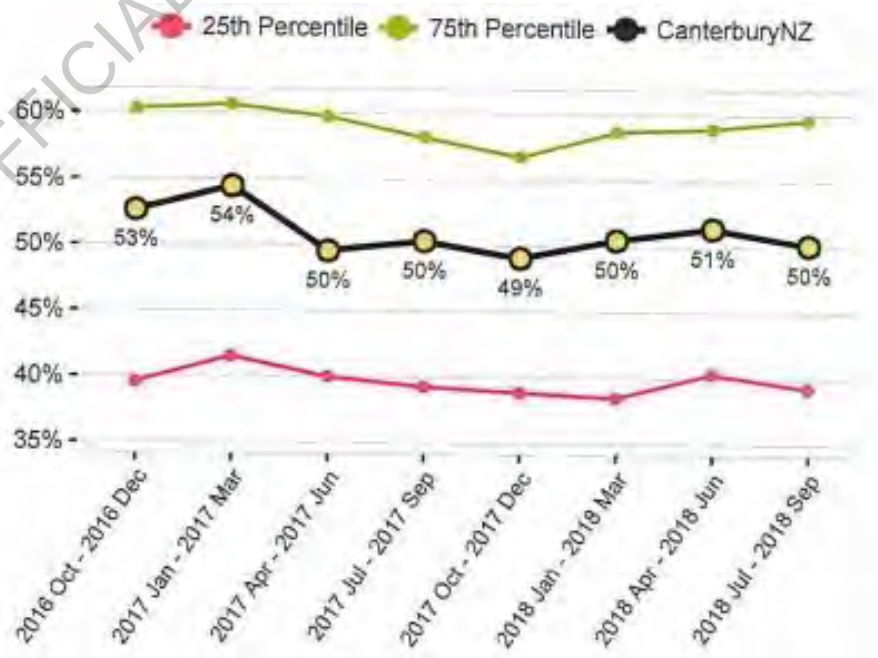
Surgical Metrics

- Canterbury is below the 25th percentile for the day of surgery rate (DOTA), and has been consistently. 10,144 or 83% of overnight surgical episodes were performed on the day of admission. Despite being below the 25th percentile, this was around average for peer DHBs.
- Canterbury is around the 50th percentile for same day elective surgery rate. Half of elective surgical episodes were same day. This was 12,391 episodes.

DOSA rate



Same day elective surgery rate



Source: HRT 2018

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APPENDIX 2

EXECUTIVE RESPONSE TO THE EY ANALYSIS

Abstract

A review of the analysis provided by the EY team to inform the development of a Sustainability and Operational Plan for Canterbury DHB as the next step in the "Pathway Forward" process.

Canterbury DHB Executive Team

CONFIDENTIAL

Introduction

Canterbury DHB has been engaging in a co-commissioned process with EY and the MoH to develop an Operational Plan that demonstrates a clear path to sustainability for Canterbury. The analysis has cumulated in three documents that are reviewed here at the request of the Board. However more importantly the work undertaken has led to the Executive sponsoring a series of Task Forces creating a determined focus on areas for improvement. These Task Forces will; sit alongside our normal continuous improvement and review processes to accelerate gains in key areas and demonstrate our commitment to sustainability. QFARC has been briefed on the areas and the Board will be briefed on Thursday. An excerpt from the Terms of Reference is included as Appendix 1.

The Task Forces are

1) Absence Management
2) Resource Optimisation
3) Revenue Optimisation
4) External Provider Contract Optimisation
5) Continuous Service Improvement

This work has led to a revised Annual Plan position and a clear pathway of reducing deficits over the next four years.

	2019/20	2020/21	2021/22	2022/23
Annual plan pre savings	(215.06)			
Generic savings e.g. churn etc.	16.60			
Draft April DAP	(198.03)			
Additional revenue May budget	2.00			
Ashburton changes	1.00			
Sick leave taskforce (net)	3.00			
Base Transition cost (included)				
Reductions: Buildings		(0.17)	0.10	0.00
Finance		(1.30)	9.30	(0.20)
Personnel		8.80	0.50	0.50
Other		(0.03)	0.00	0.00
External Contracts		24.98	0.00	0.00
Total transitional costs	(70.00)	(37.72)	(27.82)	(27.52)
Draft DAP June	(192.97)	(195.90)	(182.72)	(177.79)
Sick Leave task force (over redn transition)		5.00	5.00	5.00
Revenue optimisation	3.00	4.00	5.00	6.00
Continuous Improvement	2.50	3.50	4.50	5.50
Resource Optimisation	5.00	8.00	11.00	13.00
P&F Contracts	2.00	2.00	2.00	7.00
Transition reduction - not included in dap				
Revised Dap	**(180.47)**	**(173.40)**	**(155.22)**	**(141.29)**
IDCC - forecast per June DAP	(137.03)	(151.88)	(145.34)	(151.44)
Deficit pre IDCC	(43.44)	(21.52)	(9.88)	10.15

This reflects an improving fiscal position consistent with delivery against a range of savings / service optimization initiatives as well as reflecting the impacts of the new Christchurch Hospital Hagley being commissioned and related outsourcing brought back in house. This forecasts a return to a surplus pre IDCC over the next four fiscal years. Note this does not include impacts of the recently announced capital charge changes which could improve the fiscal position in 2019/20 by a further $8-11 m and 2020/21 and beyond $22 – 25m per annum.

Review of EY Documents

This response covers three key documents prepared by EY and provided to the DHB at different points. It highlights areas of agreement, areas of misunderstanding and areas of disagreement. The Board will gain

1) Sustainability Plan and Operational Review as presented to the Steering Group Meeting 26 June 2019 (referred to as *Steering Group Presentation*)
2) Appendices : System View and Population Statistics (made available to the DHB on 9 July) (referred to as *System View*)
3) Canterbury DHB Operational Plan Service Analytics May 2019 (made available to the DHB on 9 July) (referred to as *Service Analytics*)

Reference will be made to previous Steering Group presentations for context but they are not appended.

The three documents present quite different pictures of the performance of the Canterbury DHB and the Steering Group Presentation in particular provides a different picture to the other two documents which more clearly illustrate with detailed analyses that Canterbury performs well compared to other large DHBs. The following analysis highlights where the Steering Group Presentation provides what could be a misleading view and exaggerates the opportunities for reduction in expenditure in contrast to the more detailed analyses. We also note that some further analysis by the EY team would have highlighted the underpinning challenges Canterbury faces as a large tertiary DHB with low IDF flow to offset the tertiary cost structure, Of further interest is the significant load that Mental Health is placing on the Canterbury system accounting for 55% more bed days than our relative funding share (as compared with Comparator DHBs).

Drivers of Deficit

The *Steering Group Presentation* identified four key drivers of the deficit situation

1) Transition costs (earthquake and infrastructure related)
2) FTE growth against forecast
3) Sickness and Annual Leave and cost impacts
4) Resource management (notably forecasting/deployment of response relative to demand)

In the summary pages it was highlighted that Canterbury's share of PBFF had been declining since FY2015/16 with the comment that it "may have impacts on the Canterbury DHB's financial performance but this is not within the remit of this report." Other areas of on-going underfunding were not investigated nor was an analysis of areas where Canterbury's health need clearly exceeds both its population share and its funding share explored (apart from a brief comment in the *System View*). Benchmarking demand was a specific part of the Terms of Reference and Canterbury, in addition Canterbury DHB explicitly identified concerns over the exceptional cancer load (17% of the NZ inpatient workload for our populations) and mental health demand and its contribution to our cost structure. We had explained that our Board was concerned that cost cuts would lead to a reduction in service delivery, both quantum and quality required to provide the South Island's tertiary services.

Transition Costs

The transition costs outlined in the steering group presentation are consistent with our view of Transition Costs, as is the proposed decline in these costs as new infrastructure comes on line making it possible to deliver these services in-house. The current issue of having recruited staffing resources for a new facility that has been delayed (5 times so far) and so therefore facing duplicate human resource costs is not explored in the report. This quite specific contributor to the FY2019/20 deficit position was not taken into account despite detailed modelling of the recruitment pipeline, the provision of the specific business cases that supported the recruitment and the consequent reduction in out-sourcing being provided – noting that due to facility delays Canterbury has a longer over-lap of those costs than was previously anticipated in planning.

FTE Growth

FTE growth was the key focus of a previous Steering Group meeting where EY identified that we could save $26 M by not recruiting all of the "new" staff as planned. Canterbury subsequently provided data to demonstrate and clarify in detail to the EY team that their assumption was based on a misunderstanding of what was included in the measure of Accrued FTE and that the FY2019/20 plan number was based on current recently employed staff becoming full FTE in the following year (i.e. for the 12 month period rather than a proportion of the year) and the amount of new "recruitment FTE" was much less than had been interpreted and related directly to the establishment of Hagley. The EY team that this was workshopped with were comfortable with this understanding however the focus on "unmanaged FTE growth" reappeared in the *Steering Group Presentation*.

The justification for the proposal to reduce recruitment seems to lay in the analysis of Personnel Cost per CWD (Figure 1 from *Steering Group Presentation*) which indicates Canterbury is significantly higher than all peers except Waitemata DHB. The subsequent graph (Figure 2 from *Steering Group Presentation*) also purports to indicate that on a per FTE basis Canterbury DHB has the lowest ratio of CWD per FTE.

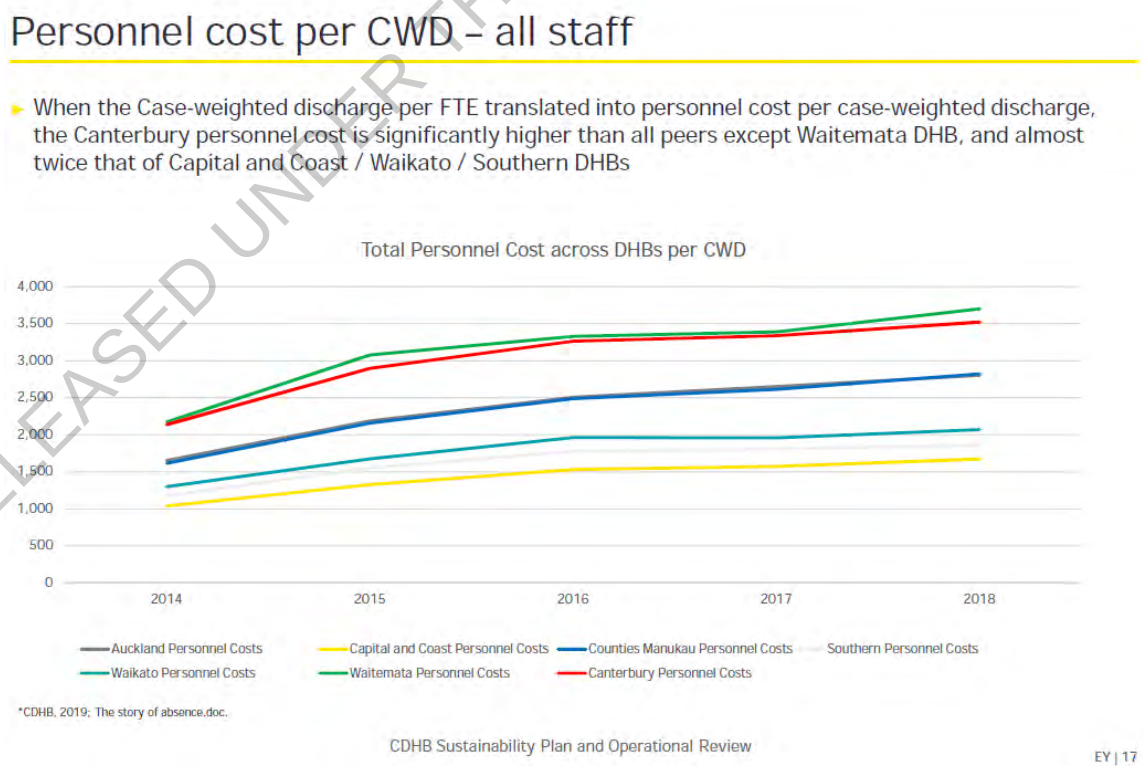


Figure 1

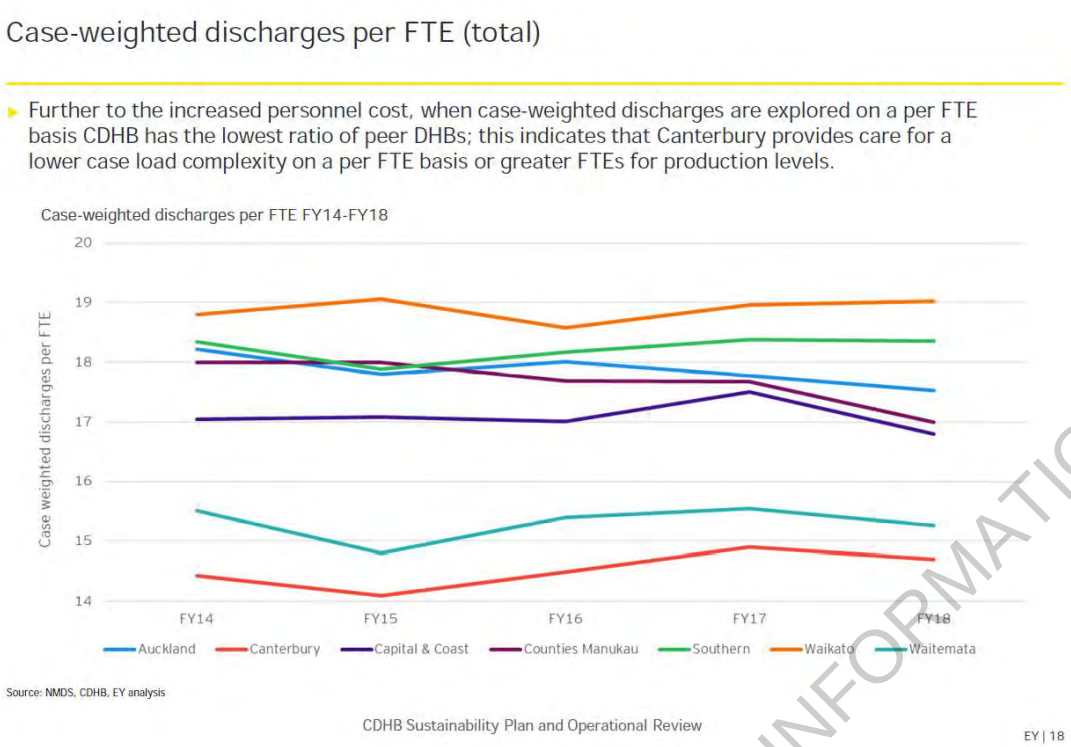


Figure 2

However this analysis, as depicted in the *Steering Group Presentation* is not supported by appropriate detailed comparators in the *System View* which provides the quite different interpretation. Essentially when comparing medical and nursing FTE only (as the major workforce groups that drive CWD), Canterbury's cost per caseweight is the second lowest of the comparator DHBs and remains so despite a sharp increase in the last year as a direct result of MECA settlements and pre-Hagley recruitment. The same analyses also indicate that rather than being less productive, Canterbury delivers the highest caseweights per medical FTE (Figure 3 from *System View*) at the second lowest cost for medical personnel (Figure 4 from *System View*)

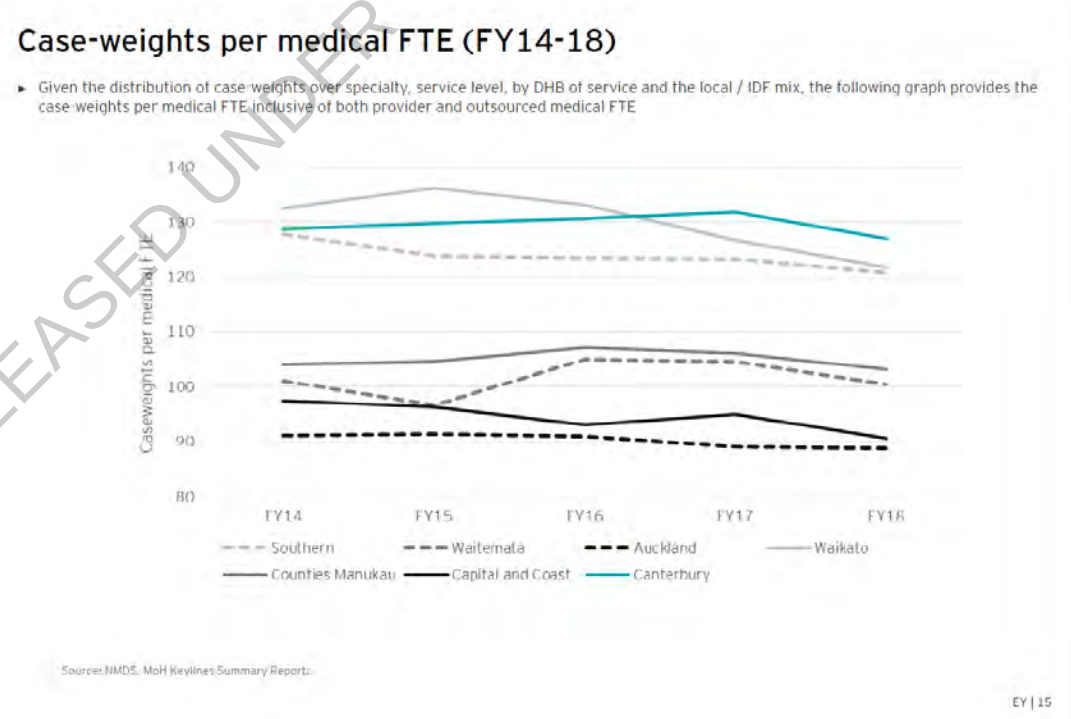


Figure 3

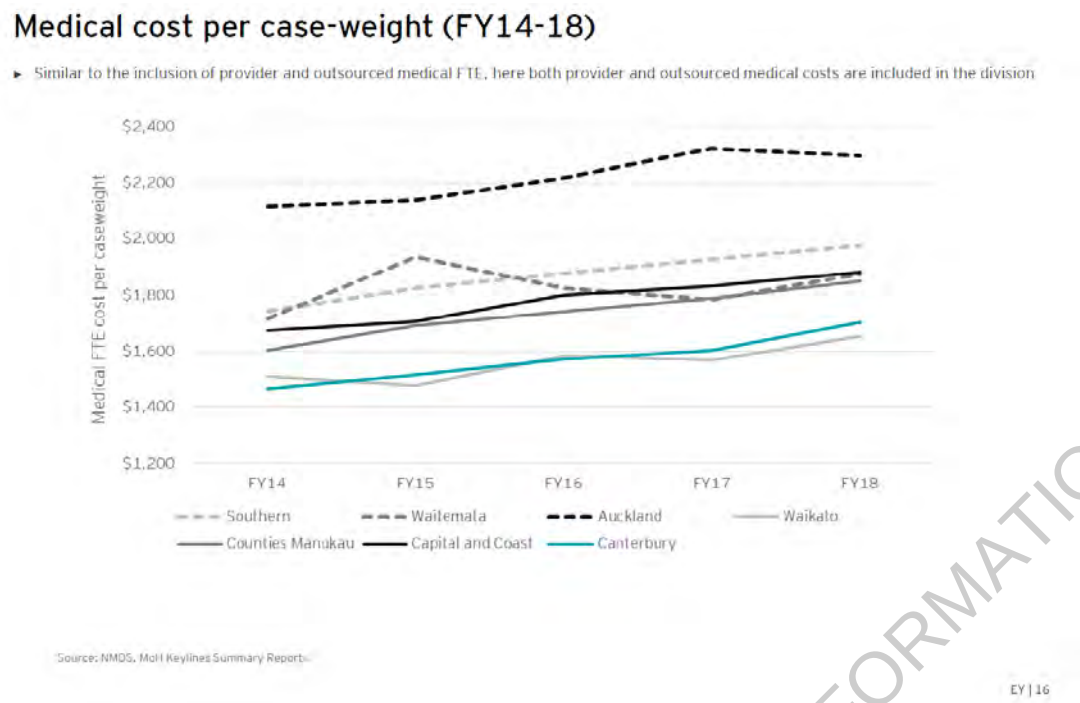


Figure 4

The analyses demonstrate Canterbury delivers fewer caseweights per nursing FTE (Figure 5 from *System View*) but at the third highest cost (reflecting the strategy of replacing more expensive staff with new graduates and training them) giving Canterbury a nursing cost per bed day that is in the middle of the range of comparator DHBs (Figure 6 from *System View*). The over-all picture that can be surmised from these 5 graphs is that on balance Canterbury bench-marks well with other DHBs on a medical and nursing comparison (Figure 7 from *System View*).

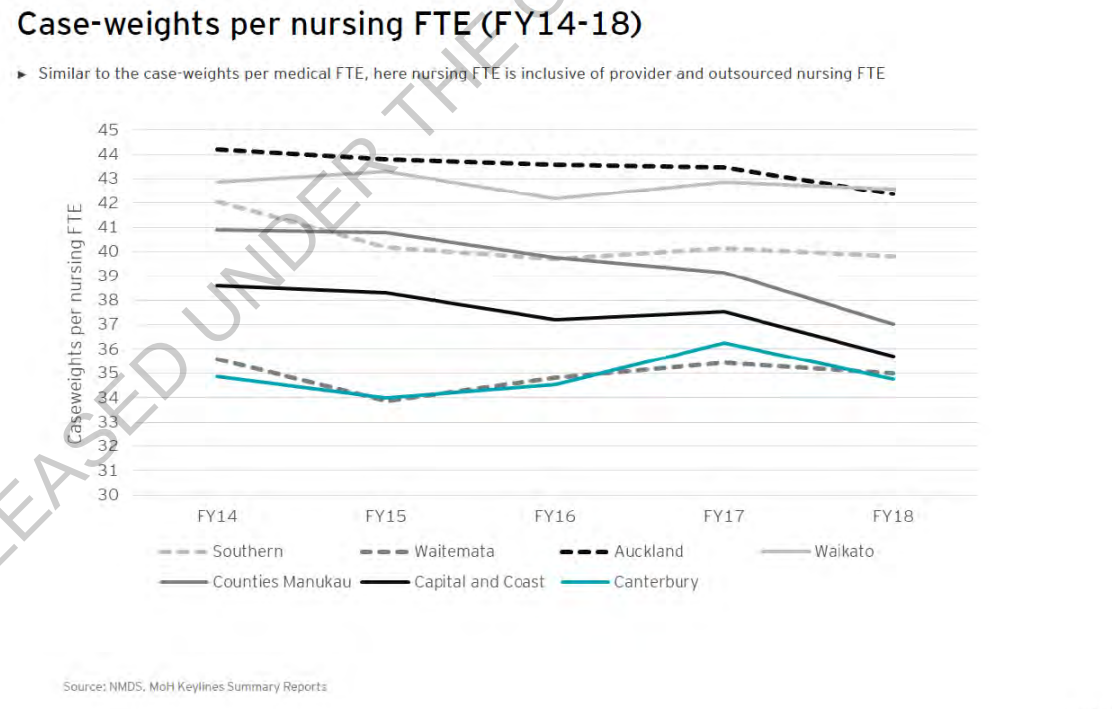
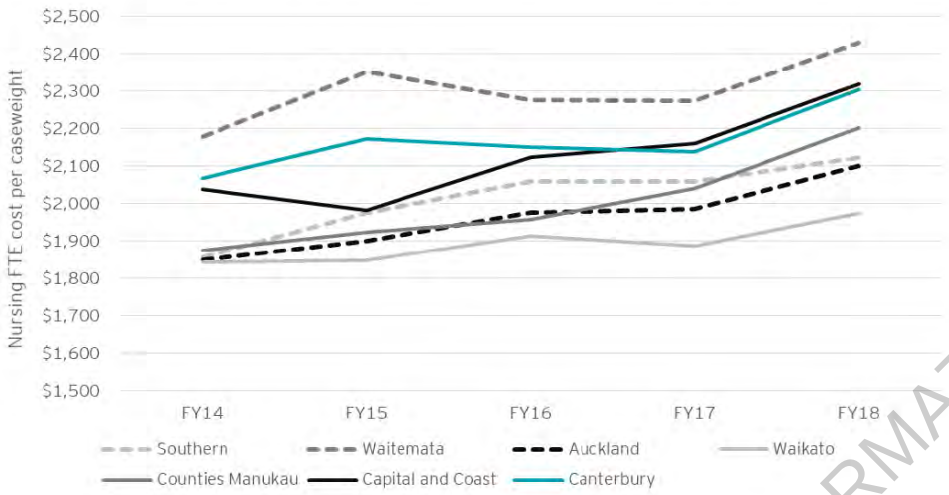


Figure 5

Nursing cost per case-weight (FY14-18)

- The following graph presents the nursing FTE cost per case-weight as per the methodology used for medical personnel



Source: NMDS, MoH Keylines Summary Reports

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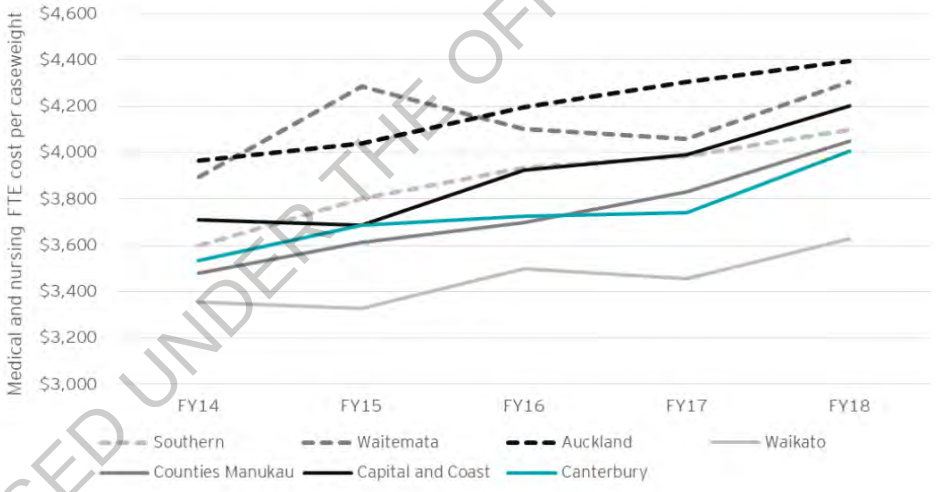
Figure 6

Med./Nursing cost per case-weight (FY14-18)

- The following graph presents the medical and nursing FTE cost per case-weight as per the methodology used for medical and nursing personnel



Source: NMDS, MoH Keylines Summary Reports

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Figure 7

So why does Canterbury perform less well on a total FTE per CWD as indicated in Figure 2? An 'all FTE' comparison is generally not considered appropriate because of the significant variation in the configuration of the DHBs in terms of their ancillary, specialist and regional services. This is illustrated below where we can identify several significant workforces within Canterbury DHB FTE counts that other DHBs do not have; some DHBs would buy these as externally provided services so they do not contribute to their FTE or where they are regional services and services that do not contribute to Caseweights (e.g. Mental Health, District Nursing).

Service	Canterbury FTE	Auckland	Counties	Waitemata	Waikato	Capital and Coast	Southern
Food	218	O	O	O	O	O	O
Laundry	128	O	O	O	O	O	O
SIAPO and Regional	27	O	O	O	O	O	O
Labs –hospital, national, regional and some community	311	Hospital, national, regional				O	O
Brackenridge	281	X	X	X	X	X	X
Forensics (regional)	179			Regional service			
Spinal –national	86	X	X National	X	X	X	X
Clinical Research	42	?	?	?	?	?	?
District Nursing	O (184 fte)	Employed	Employed	Employed	Employed	Employed	Employed

Key	O	Outsourced
	X	Doesn't have the service
	?	Unknown

This is not an exhaustive reconciliation of the FTE differential, other DHBs variously outsource their procurement, IT, maintenance and engineering functions but it is sufficient to illustrate that an "all FTE" comparison will not generally paint an accurate picture if used as a comparative measure. This means that the analysis using all FTE included 1,088 FTE that are not counted in some or all of the other DHBs either because the service is not delivered by that DHB or because it is outsourced. That is 12.8% of our workforce. Adjusting for this difference would place Canterbury close to Capital and Coast and the middle of the range for caseweighted discharges per FTE, we believe that this level of distortion across DHBs makes the analysis using medical and nursing FTE a more relevant comparator.

We are also aware that there are inherent issues in regard to what activity is actually counted in caseweighted discharges, as this differs around the country and we believe may considerably under-represent the contribution our employed workforce make. We provided EY with an accurate breakdown of activity that would be caseweighted in other DHBs, which in Canterbury that is not currently caseweighted even though it uses our workforce – this equates to approximately 36,000 case weights. This reflects the implementation of an integrated health system and the movement of activity to a community based setting which has been accelerated in Canterbury by the physical constraints. This activity, due to the location of delivery is not counted in the national datasets.

In addition the analyses did not count for activity delivered in the private hospitals by DHB staff in their Canterbury DHB role (e.g. surgeons and anaesthetists). The *Steering Group Presentation* also seemed not to recognise that in order to resource another 8 theatres (that we are currently using in the private sector) we needed to increase our employed work-force, this in essence replaces a work-force we were already paying for in the private sector; in real terms this is not an increase in resource consumed over-all, however under the current regime it is a shift of FTE from outsourced (funder contracted) to in-house (provider arm) and therefore presents as an increased FTE. Unfortunately due to the on-going delays in the delivery of Hagley we have been caught by having increased our in-house work-force in order to have them trained for the new theatres and are not yet able to reduce our out-sourcing. This will self-correct over the next 18 months as the new Hagley facility comes on stream.

What we learned from the *System View* about Relative Service Provision

The EY *System View* provides caseweight volume delivered for the local population, IDFs and includes national and tertiary services volumes for the comparator DHBs. These figures are useful for understanding delivery versus funding. Canterbury delivered 17.2% of the caseweights provided by the major comparator DHBs (Waitemata, Auckland, Counties Manukau, Waikato, Capital and Coast and Southern), but only 9.0% of the IDFs delivered by these DHBs. Canterbury provides more services for its own population than other DHBs and maintains the infrastructure to run each health specialty in its role as tertiary provider for the South Island and lower North Island. The South Island geography means Canterbury is the provider of last resort for all but a few national services and provides 14.9% of the national and tertiary caseweights. The lower proportion of secondary IDFs (8.4%) creates significant issues regarding a lack of revenue for fully costed low complexity IDFs.

Of the comparator DHBs, Canterbury delivers 17.2% of the total caseweights with 16.1% of the funding provided to this group. This relative differential of 6% amounts to a gap in funding compared to caseweighted activity of approximately $81 million using population-based funding formula including IDFs.

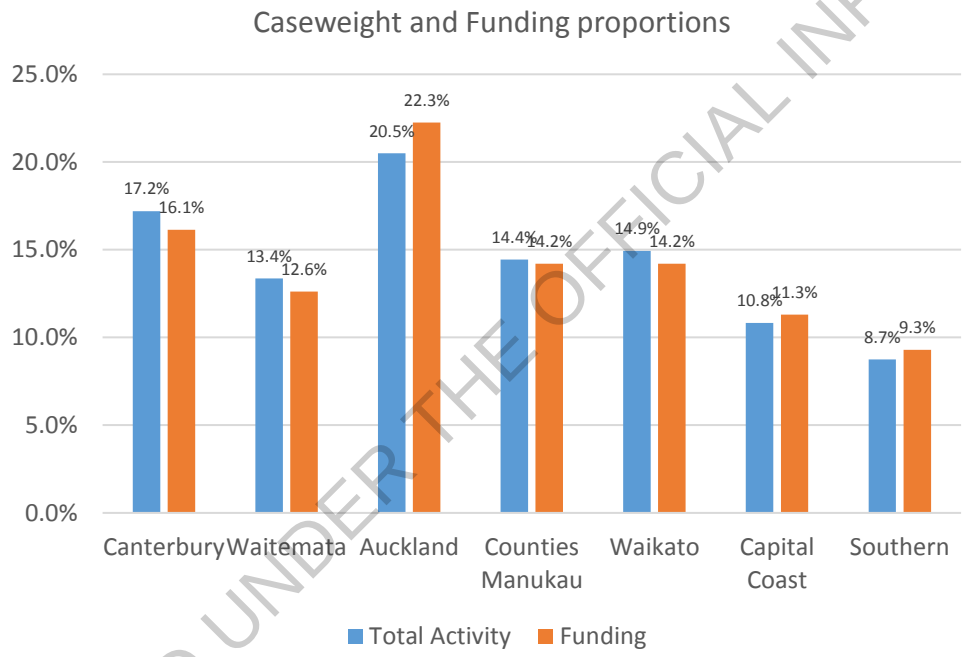

Figure 8 Canterbury Analysis based on data provided by EY in System View

There are challenges and opportunities highlighted by this data; in particular Canterbury is providing higher than expected caseweight delivery for AT&R and mental health. While Canterbury delivers 17.2% of the total comparator DHB caseweights, it delivers 23.5% of the AT&R and 23.0% of the mental health caseweights. Canterbury has the largest older population, but there appears to be more volume in this service than expected. It is reasonable to expect that this rate should be targeted for reducing the current utilisation (as agreed in the *Steering Group presentation*).

The high utilisation of mental health services characterised by the high caseweights and bed days highlights one of major issues facing our population in the aftermath of the earthquakes and a number of other events that have impacted on the mental wellbeing of our population. Our ability to moderate this need is being managed through additional services focused on integrating upstream responses to address issues before people reach crises. Progress on mental health caseweight

utilisation will take time with current evidence of plateauing of growth among adults but not younger people yet.

There continues to be a view that Canterbury's population appears to be relatively well with deprivation rates being significantly lower than pre-earthquake Canterbury. However, other measures of well-being continue to reflect a community that is and remains under significant pressure as evidenced by Mental Health activity, the proportion of CSC cards, 76,000 people in Canterbury being prescribed anti-depressants (the next largest population being Waitemata at 46,000), suicide levels etc.

The greater caseweight delivery in mental health has associated staffing requirements as Canterbury delivers 41,000 more bed days (55%) than expected on a relative funding basis. This adds considerably to the FTE count for nursing.

FY18 total case weights (DHB of service)							
	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital Coast	Southern
Med	41,939	45,388	58,382	35,119	40,284	26,451	21,864
Surg	55,116	33,818	74,705	44,680	51,698	37,340	31,125
AT&R	10,525	6,043	4,620	7,147	8,595	3,707	4,131
Mental health	10,681	7,946	7,432	5,088	5,272	6,025	4,093
Maternity/neonatal	14,277	9,778	12,684	19,171	9,132	9,870	6,122
Total	132,494	102,971	157,824	111,206	114,980	83,393	67,333

FY18 proportion case weights and funding (DHB of service)							
	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital Coast	Southern
Med	15.6%	16.8%	21.7%	13.0%	15.0%	9.8%	8.1%
Surg	16.8%	10.3%	22.7%	13.6%	15.7%	11.4%	9.5%
AT&R	23.5%	13.5%	10.3%	16.0%	19.2%	8.3%	9.2%
Mental health	23.0%	17.1%	16.0%	10.9%	11.3%	12.9%	8.8%
Maternity/neonatal	17.6%	12.1%	15.7%	23.7%	11.3%	12.2%	7.6%
Total Activity	17.2%	13.4%	20.5%	14.4%	14.9%	10.8%	8.7%
Funding	16.1%	12.6%	22.3%	14.2%	14.2%	11.3%	9.3%

Drivers of FTE Growth

On page 16 of the *Steering Group Presentation* EY notes the drivers of FTE growth being ASB Recruitment (107 in place , 86 to be recruited) , Schedule 10 MECA compliance (31.4 FTE), CCDM (Nursing Accord) uplift and Support Uplift . These statements do not provide a complete picture, therefore misleading the reader. One key issue is CCDM, EY identifies the impact as $938,000 for nursing staff due to an increase in 9 FTE however that is the amount for supporting the project resource for implementation of TrendCare; the actual required increase in ongoing work force numbers as a result of the Nursing Accord was 57 nurses in excess of $4 M (which was funded in additionally in FY2018/19 but has to be funded by the DHB in FY2019/20). EY also stated verbally that TrendCare implementation would lead to a reduction in nurses because we have too many nurses and our complexity is low. We provided EY with a detailed analysis of ward work-load against current TrendCare benchmarks which clearly demonstrated that we were in line with the benchmarks, in addition EYs own analysis identified that our caseweight complexity is the second highest. We also provided analyses from CentralTAS that reinforced that the South Island has higher complexity (PCCL index) and comorbidity (Charlson Comorbidity index) but these analyses have been left out of the reports, with statements that our complexity is lower.

Patients Clinical Complexity Level (PCCL) is a severity value reflecting the likelihood that Complication and Comorbidity Levels (CCLs) of an inpatient episode of care will require increased resources than normally needed.

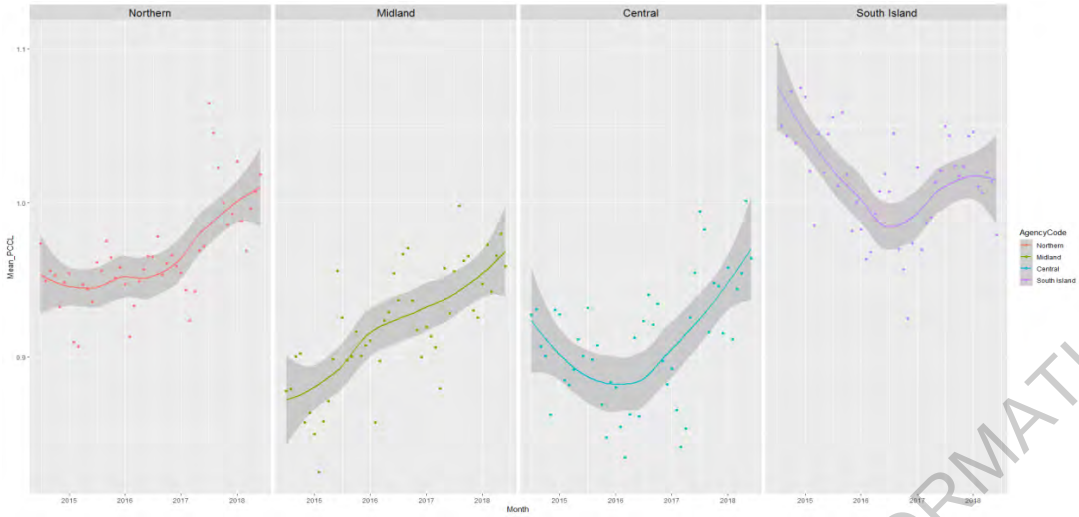

Figure 9 Monthly PCCL scores by region (Source: NMDS)- CentralTAS

The Charlson Comorbidity Index (CCI) is a method of categorising comorbidities of patients based on the International Classification of Diseases (ICD) diagnosis codes. The higher the score, the more likely the predicted outcome will result in mortality or higher resource use.

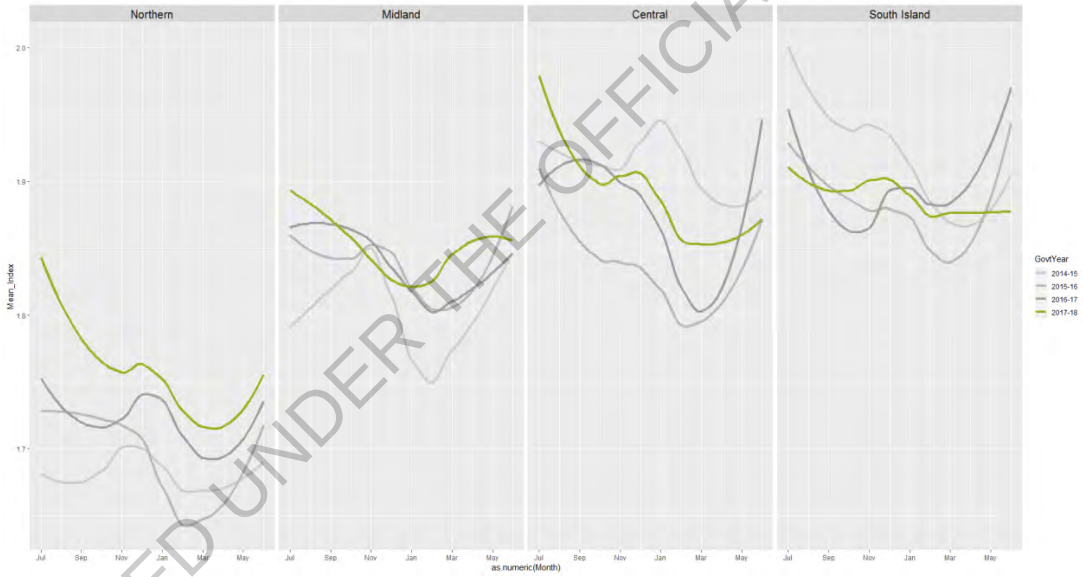

Figure 10 Monthly Mean Charlson Comorbidity Index by region (Source: NMDS)-CentralTAS

The Support Uplift references bringing laundry in-house in 2017 as contributing 200 to growth in support staff. The 200 referred to was the insourcing of food services rather than laundry (which has been an insourced service for a number of years, itself was most recently benchmarked extremely favourably against outsourced provision as part of HBL activities nationally). What needs to be weighed against the increase in FTE is the fiscal gain from doing so, where the overall saving to the DHB of insourcing this function was in excess of $4M in the first year, and closer to $5M at the end of the second year. Also unmentioned is the need to increase support staff and in particular orderlies to navigate the significantly larger Christchurch Campus. These issues have been exacerbated by the increased dislocation of services such as theatres (across three buildings) and the decision by HRPG to not build the connecting infrastructure that would have reduced the need for this additional FTE.

In actuality most of the workforce increases in the last five years can be explained by either the need to resource Hagley (much of which is substitution for outsourced activity) or external requirements of the MoH and MECAs as illustrated in the Canterbury DHB graph (Normalised FTE) below. In addition if we remove the subsidiaries and the in-sourced food service (July 2017) it can been seen that the growth in FTE is less than the growth in activity as clearly illustrated in the following graph.

Normalised FTE

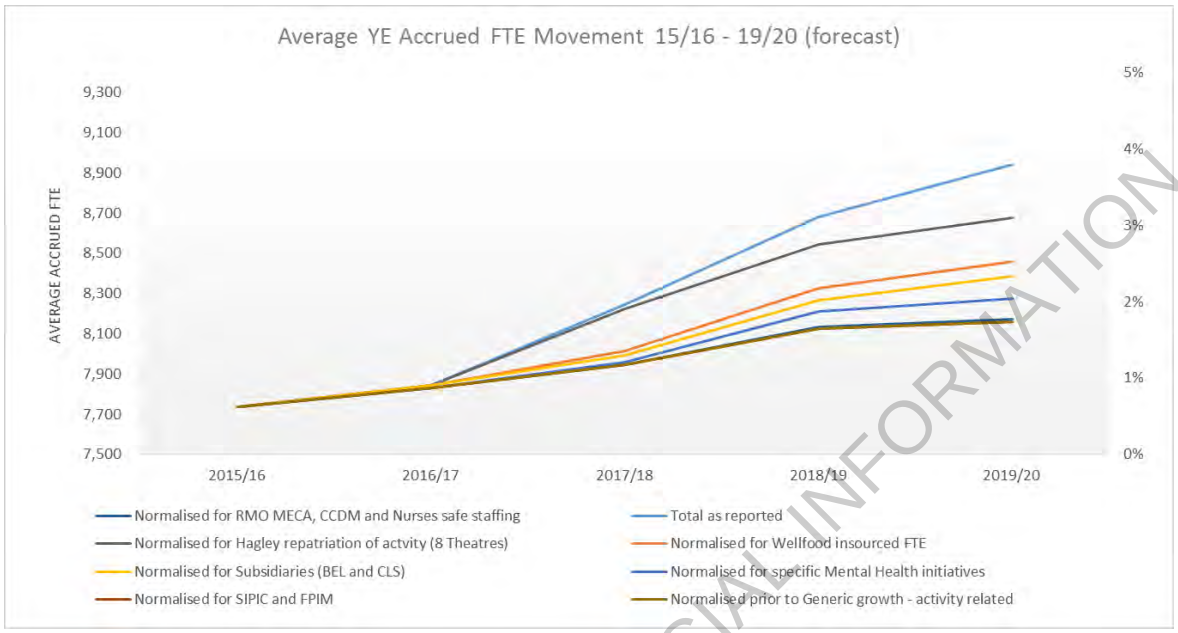

Figure 11 Finance Canterbury Analysis

FTE Growth versus Activity

Figure 12 Finance Canterbury Analysis

Recent information published by the MoH and provided to the CEs, which was originally published without Canterbury DHB FTE data has been amended to include Canterbury and is displayed below. Based on this it would appear that over a five year time frame the total growth in Canterbury DHB FTE is less than, or comparable to our cohort DHBs despite the uplift required to occupy Hagley.

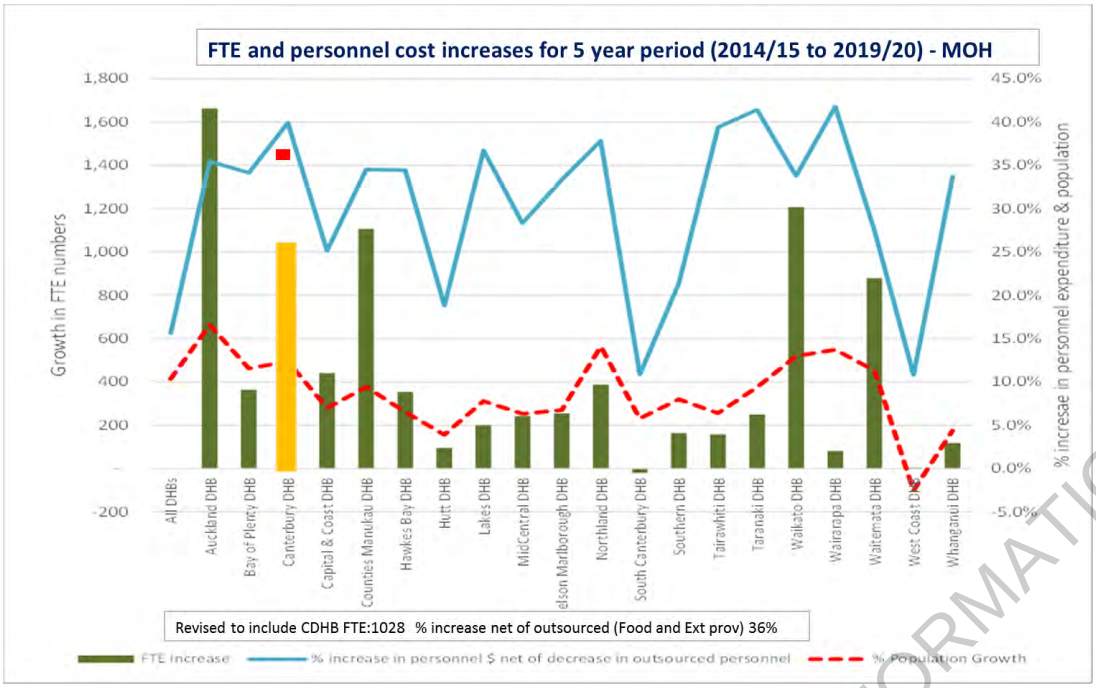

Figure 13 MoH Analysis July 2019 with Canterbury added

Sickness and Annual Leave

Canterbury clearly has a sick leave issue, but we do not concur that it is an issue of poor management as is implied in the *Steering Group Presentation*. The one piece of analysis that we were unable to provide because of the sheer complexity in a 24/7 business was whether there was a "Monday/Friday" pattern to the sick leave. Given our roster patterns and the scale of the work force that was hard to extract in a meaningful way. However as the intent of the question was to prove that people were randomly taking unnecessary sick leave we provided instead the analysis that approximately 22% of sick leave is unpaid, this underpins our major concern about the wellness, well-being and resilience of our work-force. The Board had already explored this issue and approved a strategy to address this issue but some of the factors are outside our direct control e.g. the known stressors of living in Canterbury, the poor quality of the physical work environment and the high demand in constrained capacity environment.

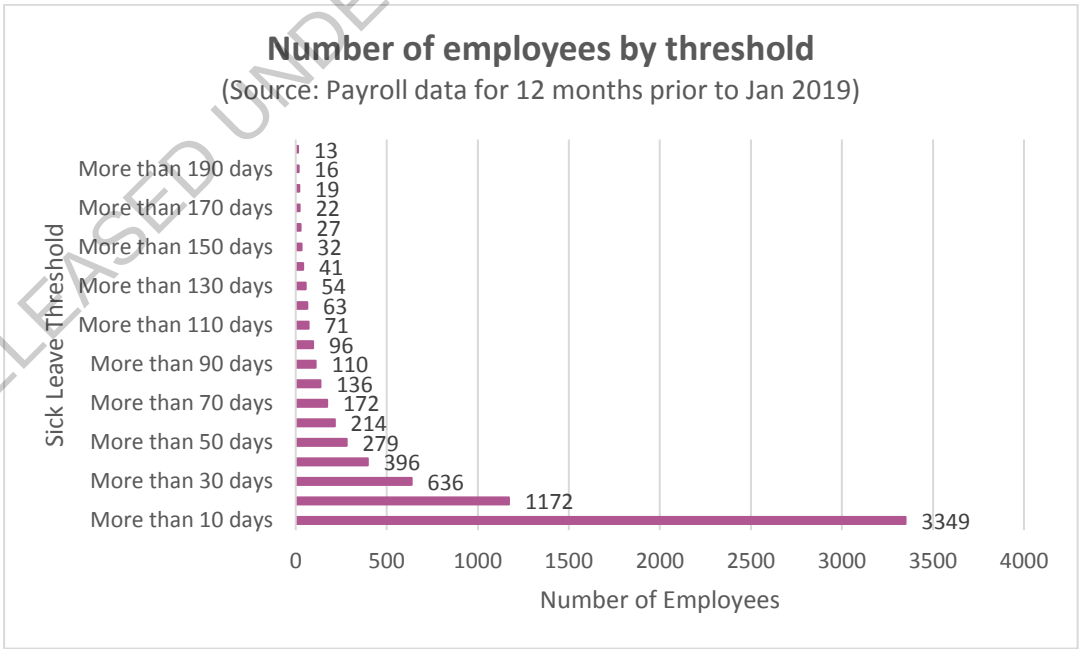

Figure 14 People and Capability Canterbury

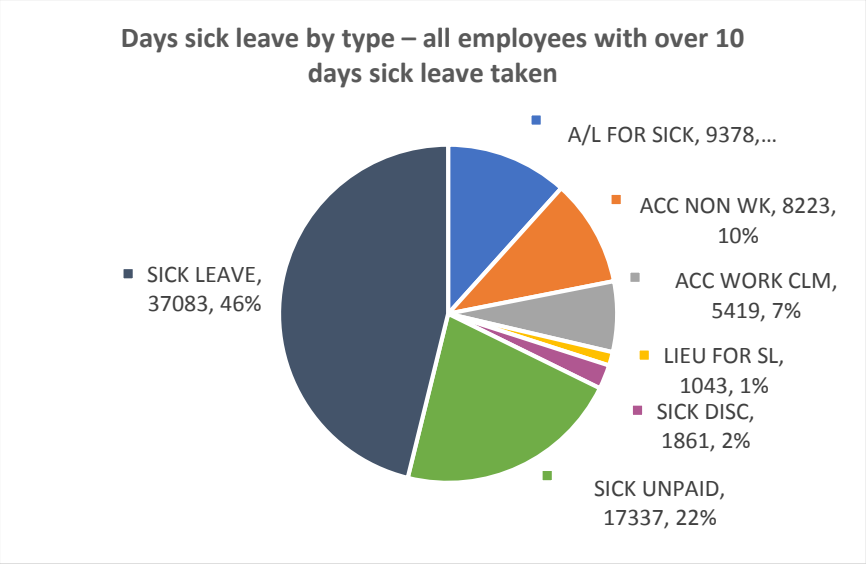

Figure 15 People and Capability Canterbury

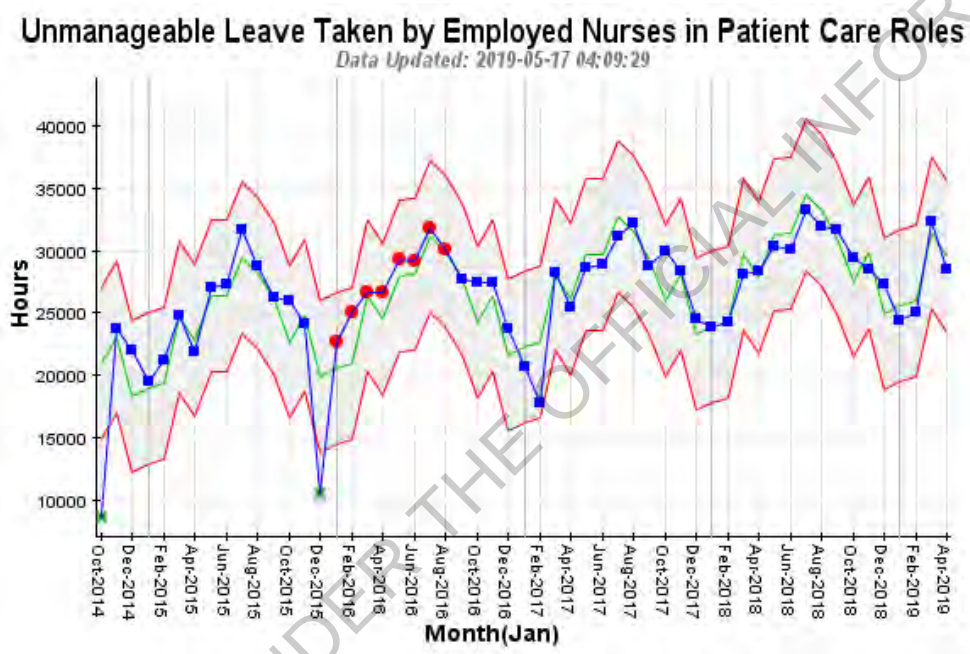

Figure 16 Planning and Funding Canterbury

Annual Leave

In terms of Annual Leave liability, Canterbury is no different from all other DHBs and better than a number, naturally the increment in liability is driven by a combination of both volume in hours and rate increase (which has been exacerbated by recent MECA settlement increases). While we did have a mismatch in controls for the SMO workforce where leave is captured in our automated people system (MAX) but not automatically reflected in rosters and payment systems (which is the next iteration of this system). We have been aware of the problem and have control processes in place to mitigate and manage until this system enhancement can be put into production. A spot audit of SMO leave is being undertaken to fully scope the issues. We also have in place direct management processes for people with high leave balances, and have been reporting progress to QFARC on an regular basis for a number of years, but we note that the high sick leave and the high demand have contributed to people's reluctance/inability to take leave. We also had a specific plan for Easter 2019 to reduce theatres and lower work load to enable a number of people to take annual leave, this was however thwarted by the Mosque event.

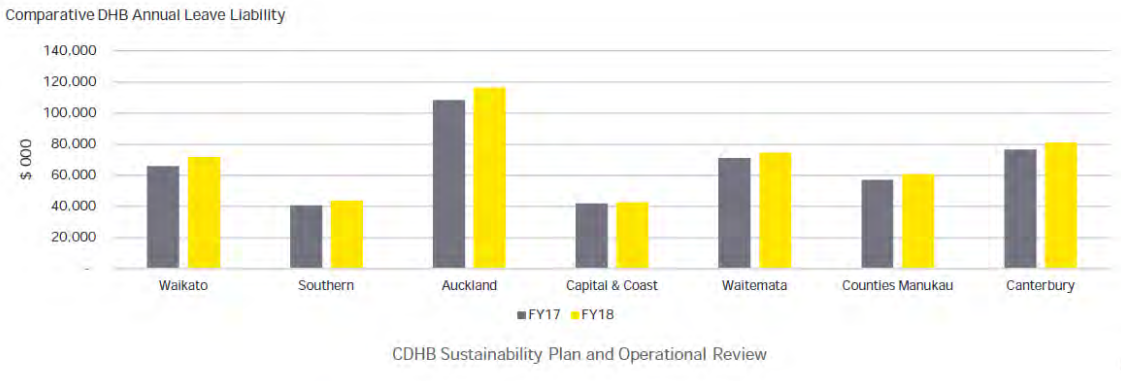

Figure 17 EY Steering Group Presentation

Resource Management

EY suggested that we could improve our resourced to occupied beds beyond 90% on average, logistically that would be problematic given that nursing ratios have wards resourced at 83% or 100%. We asked for evidence from other DHBs, however they have not been able to provide us with any evidence of better performance. A tertiary DHB managing multiple specialties would be challenged to do better than 90% across the board on average and the gain in reduced work force would be more than offset by the loss of flexibility to manage the high level of admissions and discharges in a timely way thus perversely increasing occupancy. We admit and discharge more than 300 patients per day from our inpatient wards and have in excess of 400 patient movements. Admission and discharge being the most time consuming for the nursing workforce and timely admission and discharge is critical to maintaining the flow across a hospital with limited physical capacity.

In effect there are two ways to reduce costs;

1) by reducing length of stay and thus increasing bed utilisation and in the past 5 years in Med/Surg we have increased from 140 patients per bed per annum to 183 patients per bed per annum
2) by reducing resourced beds however the admission and discharge load stays irrespective of the length of stay and is in effect a minimum functional nursing capacity required

It should be noted that when the rosters are set 6 weeks in advance resourcing is also set at a level to enable sick leave to be internally covered as much as possible, rather than last minute engagement of agency nurses which is generally more expensive.

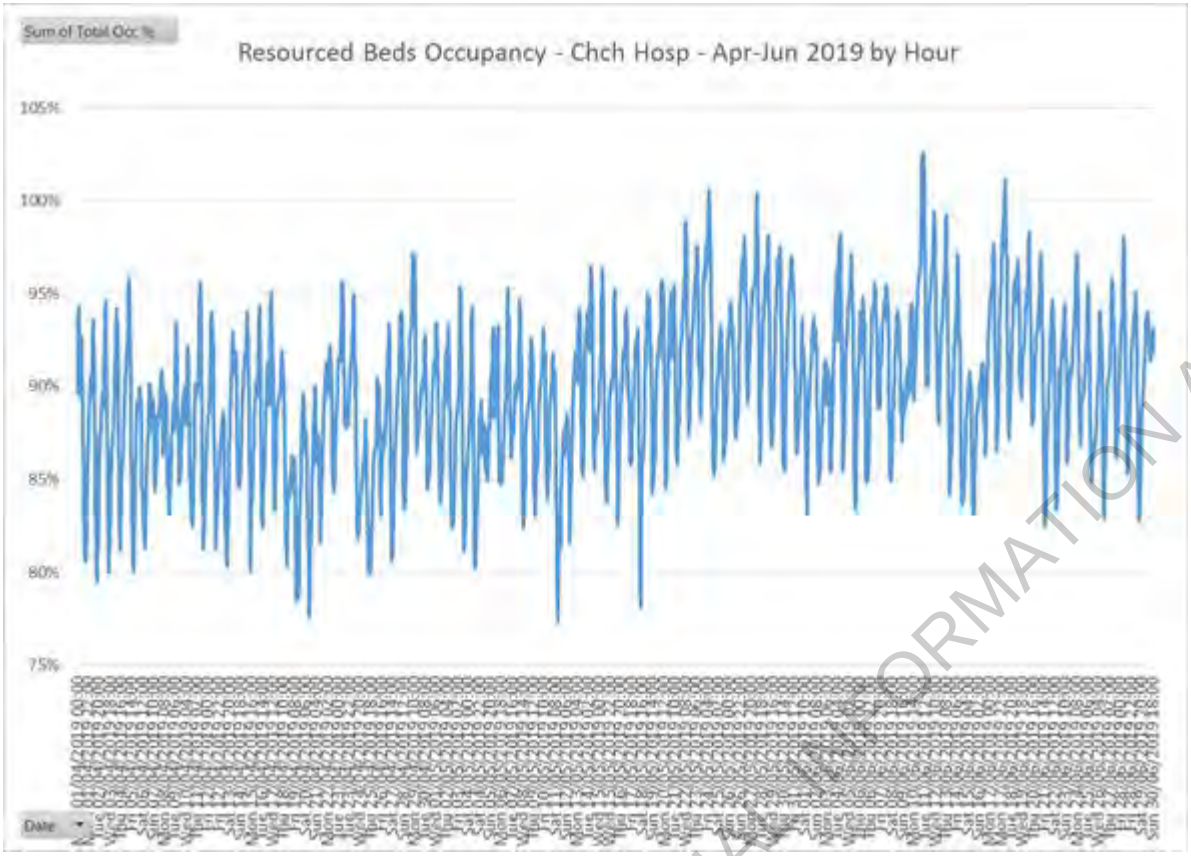

Figure 18 Decision Support Canterbury

Funder Arm

EY has suggested that the Funder Arm could reduce by 1-2% per annum which is in the order of $7.5 to $15M. The analysis previously provided to EY demonstrated that all of the cost increases in the Funder Arm in FY2019/20 ($18M excluding those directly offset by revenue) were directly related to price increases in national contracts (ARRC, PHO, pharmacy) MoH requirements (required minimum price increases related to pay equity agreements, largely NGO sector), population related increases (capitation), PHARMAC increases, forecasted volume increases (ARRC, pharmacy, Labs, radiology, acute demand). EY had initially misunderstood the reason for the most recent growth in expenditure as they were unaware that Canterbury's Funder Arm undertook the outsourcing to ensure effective contracting processes are maintained. Without this understanding EY had assumed that the increase reflected poorly managed contracts.

Currently the Funder Arm has very limited capacity to further reduce expenditure having undertaken recent reviews of expenditure, provided the Board with Impact Analyses for each contract reduction and having actively reduced and reconfigured contracts as a result. In addition as the Funder Arm manages a great deal of Demand Driven Expenditure which accounts for 65% of the total. There is a continuous process of review and demand side management to balance the risks across the portfolio of contracts. Taking a broad view of "discretionary/strategic" expenditure (i.e. defined as not directly required by the Crown Funding Agreement, Operating Policy Framework, Minister's letter of Expectations or other MoH contracts) it accounts for 5.5% of the total Funder Arm portfolio. This covers programmes such as Acute Demand, CREST, HealthPathways and the Canterbury Clinical Network. The EY expectation would require an 18% to 36% reduction in this aspect of expenditure.

Risk and Assurance Planning

The October 2018 QFARC paper "Audit - three year plan update" was provided to EY as part of the engagement. A number of components of this paper seem to have been misinterpreted when incorporated into the EY *Steering Group Presentation*. EY has not sought clarity on their interpretation as included:

- ***"Recent introduction of data and analytics capability (late 2018) enhancing audit effectiveness- plan is to enhance assurance coverage through emphasis on performing more focused scope of works"*** - The data and analytics capability of audit and risk is not a recent introduction – it has been an existing capability for a number of years, it was however enhanced by a modest additional investment in late 2018
- ***"Unplanned delays have affected previous execution and finalization of assurance activity leading to re-drafting of plan for 19-20"*** - Unplanned delays in the implementation of the National Oracle Solution were assessed for impact against the original audit plan schedule. As a result of this the budgeting assurance activity was rescheduled, this later timeframe should maximise value of the audit process as the review is of the new system and process rather than the 'end of life' system and process that would have been in place if the original audit timeframe was adhered to.
- ***"As of June 2019, assurance reporting for leave management and staff recruitment is outstanding"*** - No assurance activity is outstanding compared to the audit schedule, the schedule provides a year by year plan – both of these audits are planned for 2019 calendar year and accordingly are scheduled for later this year.

Page 23 of the EY *Steering Group Presentation* lists the audits that EY consider are pertinent to the deficit drivers and the identified risk – both of these are extracted from the October 2018 QFARC papers. The Residual Risks displayed are taken from the audit plan, however as explained within the QFARC paper these risks are generic and represent audit risks that R&A wishes to review through the planned audits, to gain assurance over the potential auditable area. The auditable areas in the Canterbury DHB Internal Audit Plan have been identified with Residual Risk Ranking as "High", thus requiring R&A focus and priority. We believe that the table as written in the EY *Steering Group Presentation* can easily mislead the reader in regards to the effectiveness of controls in each of these areas. To gather a deeper understanding of the assurance activity which has been performed as per the plan, and to provide clarity of the outcomes of these reviews the table below includes excerpts from the respective audit reports for each auditable area (noting that these full reports are provided to QFARC as part of the completion process).

Auditable Area/Activity (Per Audit Universe)	**Excerpt from audit review report conducted**
1.1 Delegations Authority	We identified improvements since our 2017 Review in the compliance with manual, preventive and administrative controls and in consistency of application of the control regime. Overall, our impression is of a control regime that has bedded in and is now operating more consistently since its revision in 2016. Specific strengths are noted below, as well as a small number of opportunities for improvement that we identified.
1.8 subsidiaries related	CLS: We are satisfied that the controls over the processing of linen not owned by CLS is adequate to ensure revenue is accounted for and charged for these customers. BSL: Overall, given the size of operations and the small number of staff, we are reasonably assured over the adequacy and effectiveness of key controls over accounts receivable and revenue management at BSL

2.1 Budget Achievement/Monitoring	This has been re-planned for to occur in late 2019 due to delays in NOS implementation
2.9 Investment and Asset Management	There is reasonable assurance that the reported progress in support of the ICR Improvement Programme is consistent with evidence sighted for each of the Elements reviewed, with the exception of Element 3 - *Quality of Long-term Investment Plan* and Element 5 - *Organisational Change Management Maturity.* Monitoring of these two Elements and improvement in associated reporting are required to ensure progress continues. There is reasonable assurance that evidence produced to verify progress with the OCMM High-level Plan for Element 5 and to validate scoring in the pending OCMM self-assessment has both integrity and relevance to change management capability.
3.1 Payroll	Our Review has identified that the People and Capability Payroll team has been organised in a manner that allows staff members to back up one another in performing their duties. While this approach may make it operationally more efficient, it weakens some of the normal level of segregation of duties. Given the current weakness of the PSE system in not being able to enforce stronger system based controls and the heavy reliance on manual controls, there is an inherent risk of the system of internal controls being compromised. In such an environment reliant on trust placed upon staff members, there needs to be adequate detective controls, i.e. oversight and review of sensitive activities. However, our Review has identified that one of the key controls, the review of master file changes, has been variably applied. It is essential that this control be comprehensively addressed as soon as possible and consistently complied with moving forward.
3.2 Leave Management	Scheduled for second half 2019
3.3 Recruitment	Scheduled for second half 2019
3.9 Employee Related Costs (including Allowances, CME, Conferences and Training)	Although our data analysis exercise did not identify any duplicate claim, heavy reliance continues to be placed upon both the Line Managers and Finance staff to carry out their checks and approvals in a diligent and vigilant manner. The use of Max to channel expense claims will help to improve the controls as staff are conditioned to a more stringent and programmed control regime of submitting, approving and attaching the necessary documentation to support the expense claims.
4.1 Procurement and Purchasing	Based on the sample of contracts reviewed, there is reasonable assurance that controls in place to support compliance with CDHB contracting policies and processes are adequate and can operate effectively to meet the intent of *OAG guidelines on public entity sourcing* and the spirit and requirements of the *Government Rules of Sourcing*. We reiterate our opinion from our 2015 review that effectiveness of the control regime to manage risks depends on diligent and <u>continual</u> compliance with the *Procurement Policy and Procurement Toolkit*, as well as enduring management support as the second line of defence.
5.8 IT Performance	Based on the approved CDHB ICT Operations Assurance Plan itself and sample testing to verify the status of specified assurance activities in the plan, we consider there is reasonable assurance that progress being made to complete assurance activities listed under the Plan supports both requirements under the Plan and an effective control regime for ICT-enabled projects, programmes and related risks in the CDHB.

Summary

The Ministry of Health and Canterbury DHB co-commissioned process conducted by EY has identified a number of challenges and opportunities to developing a path to sustainability for Canterbury. This process has led Canterbury DHB to develop five Task Forces to progress key issues through an operational plan that forecasts a return to a surplus pre IDCC over the next four fiscal years.

The Board requested review of the three EY supporting documents: the *Steering Group Presentation*, the *System View* and the *Service Analytics*. Although there are internal inconsistencies between these three reports, the detailed analyses demonstrate Canterbury DHB benchmarks well with comparator DHBs for measures of performance. Canterbury is also delivering the second highest number of caseweights, but is disadvantaged by proportional funding.

One area highlighted as an issue was FTE growth and the productivity in terms of caseweights per FTE and cost per caseweight. However at a detailed level the EY reports confirm that Canterbury benchmarks well against its peer DHBs. The analysis indicates that there are areas for improvement which Canterbury has actioned but the analysis hasn't addressed many of the elements that were specified in the Terms of Reference as being part of building a shared understanding as to how Canterbury ended up in a deficit position. The intent was to build on the understanding developed in the "Truth and Reconciliation" process leading to an Operational Plan.

Our assessment is that the delivery has not met the Terms of Reference and the EY focus has been shifted to a group of specific metrics without furthering any contextual analyses that reflect the Canterbury specific circumstances in terms of operational impacts of damaged and delayed physical capacity and specific service demands as a consequence of the disasters.

Appendix 1: Excerpt from the Terms of Reference

Scope of Work and Outputs

It is envisaged that the scope of work and outputs will include the following.

a) A short term response reflecting the DHB's 2018/19 Annual Plan and projected 2019-2020 operating position. The response should include any immediate recommendations to improve the DHB's operating position for 2018/19 and that might set up further efficiencies or sustainable processes for 2019/20.

b) A medium term work programme that includes key workstreams that will moderate operating costs across identified service lines and/or expenditure lines, for example:

- Procurement improvements and other related efficiency initiatives;
- Pharmacy utilisation;
- Models of care;
- Clinical variation;
- Personnel costs considering FTE increases, recruitment projections, labour mix;
- Diagnostics;
- Support services (non-clinical); and
- Any other examples.

The work programme will require assignment of DHB workstream leads.

c) An Operational Plan, which will be delivered using a programme management office approach, will include a clear outline of:

- Risks;
- Service delivery, quality and equity impact assessments; and
- Benefits realisation in relation to the financial position, including tracking and monitoring.

d) The benefits realisation could be linked to:

- Application of a suite of productivity measures based on agreed clinical outcomes;
- Best practice budgeting and internal control measures; and
- Planning and performance initiatives based on data and technology initiatives the DHB has underway.

Information and Analysis underpinning the Operational Plan

The plan and work programme will be underpinned by agreed information and analysis, using current sources as much as possible. This could include:

a) Health needs assessment and service planning already under way, including future models of care;

b) Financial and performance metrics and information, which could encompass the following elements:

- The historic, actual and forecast operating position with accompanying financial statements clearly demonstrating the DHB's:
  - EBITDA or similar; and
  - Operating surplus/deficit after IDCC.
- Drivers of the DHB's historic, actual and projected operating position based on:
  - Service demand;
  - Staff, supplies, other operating costs;

- Service lines;
- Service provision; access and outcomes (using agreed metrics, e.g. on admission, bed days, CWD, theatre utilisation);
- Understanding thresholds of care and variation in care models;
- Community based service provision – primary and community care including pharmaceuticals, aged residential care, mental health, NGOs, home based support services; and
- Agreed comparisons, e.g. other DHBs; comparable health service organisations.

- Consideration of other relevant issues including the future residual impact of earthquake-related 'additional' costs, national and regional initiatives, e.g. supply chain and procurement.

- Budgeting, governance and management controls, processes and approaches used by the DHB.

APPENDIX 3

Responding to the EY Review

1

The size of the deficit and the management challenge

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EY

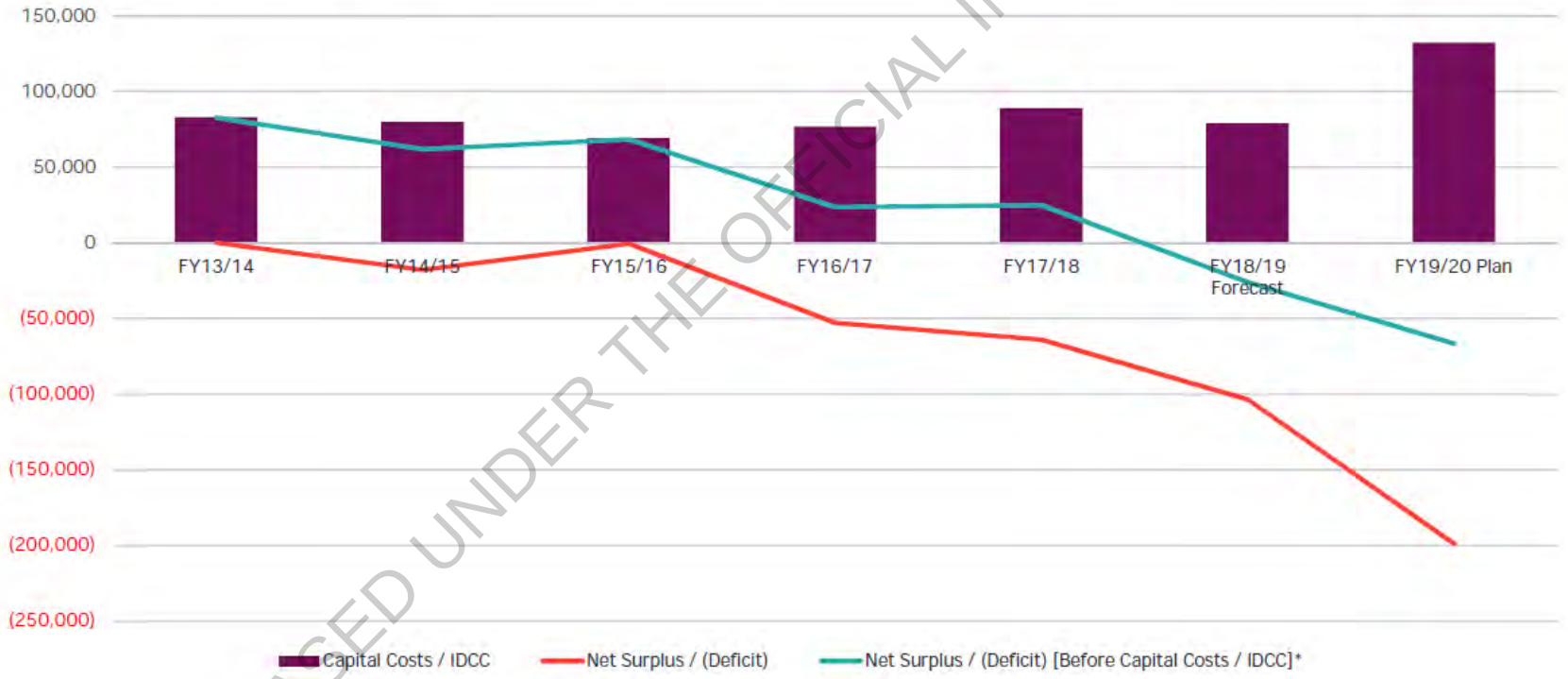
The size of the gap and management challenge

- Almost double the forecast year end result for 18/19
- $132M of the forecast FY19/20 deficit is depreciation and capital charge
- CDHB faces $70M of transition costs – these are not easily offset in 2019/20
- All DHB's cost lines for FY 19/20 are exceeding revenue growth with the most significant being personnel cost growth.
- Significant rates of unplanned leave (Sick leave payments FY18: $21M) in addition to a large annual leave liability which is worsening

Historic and Forecast deficit exclusive of capital charge and depreciation

- CDHB has been building new infrastructure to meet capacity demands and rebuild earthquake damaged facilities.
- FY19/20 capital charge and depreciation costs are expected to be ~$130M

Impact of IDCC increase on net surplus/deficit



What we found: Insights from quantitative analysis

Expenditure trends

- CDHB had a relatively sustainable financial history prior to the Christchurch Earthquakes.
- Sick leave and annual leave position is worsening
- CDHBs deficit position before IDCC has deteriorated by 130% since FY14.
- The largest cost increase since FY14 is personnel costs, increasing at 32% since FY14.

Deficit Drivers

Transition Costs

- EY and CDHB have jointly compiled and agreed on the quantum of transition costs.
- Costs inclusive of: ASB readiness; stranded FTE as a result of ongoing delays; and out sourcing/out placement of theatre activity.

FTE Growth

- Approximate $10M overspend across FY 17/18 and Q3 18/19
- FTE growth since 1 July 2018 phasing into the next financial year has impacted the DHBs operating position by circa $25M (this is increased headcount only)
- CDHB needs to consider the redistribution of resource from within existing FTE levels

Sick Leave and Annual Leave

- Absenteeism over the last 4 years has climbed by 18.5% with a FY 18 estimated spend of $21m.
- A CDHB report acknowledges that over FY18-19 ~450 staff (5.5% of total DHB workforce) / day were off work, sick.
- Annual leave liability increasing; concerns around approval and tracking of leave

Resourcing

- Gap in nursing resource allocation and occupancy despite the CDHB efforts to reduce the variability with a target of 90% accuracy.
- Further work is required to see if the gap between occupancy and resourcing can be improved.

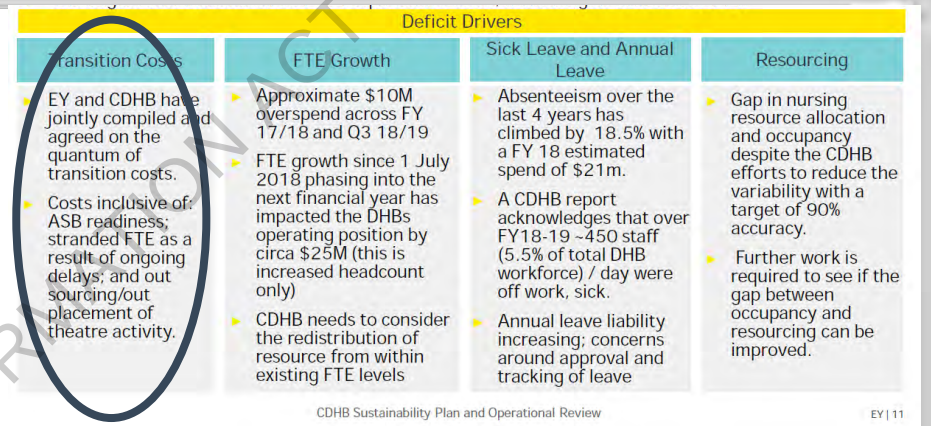
Transition Costs

The transition costs outlined in the steering group presentation are consistent with our view of Transition Costs

Proposed decline in these costs as new infrastructure comes on line making it possible to deliver these services in-house.

The current issue of having recruited staffing resources for a new facility that has been delayed (5 times so far) is not explored in the report.

Noting that due to facility delays Canterbury has a longer over-lap of those costs than was previously anticipated in planning.



Transitional costs - Details

	2019/20	2020/21	2021/22	2022/23	2023/24
Buildings	5.6	5.8	5.7	5.7	2.6
Finance	15.2	16.5	7.2	7.4	7.4
Personnel	11.8	3.0	2.5	2.0	0.2
Other	2.7	2.8	2.8	2.8	2.8
Sub-total External Contracts	34.7	9.7	9.7	9.7	4.9
Total Transition costs	70.0	37.7	27.8	27.5	17.8

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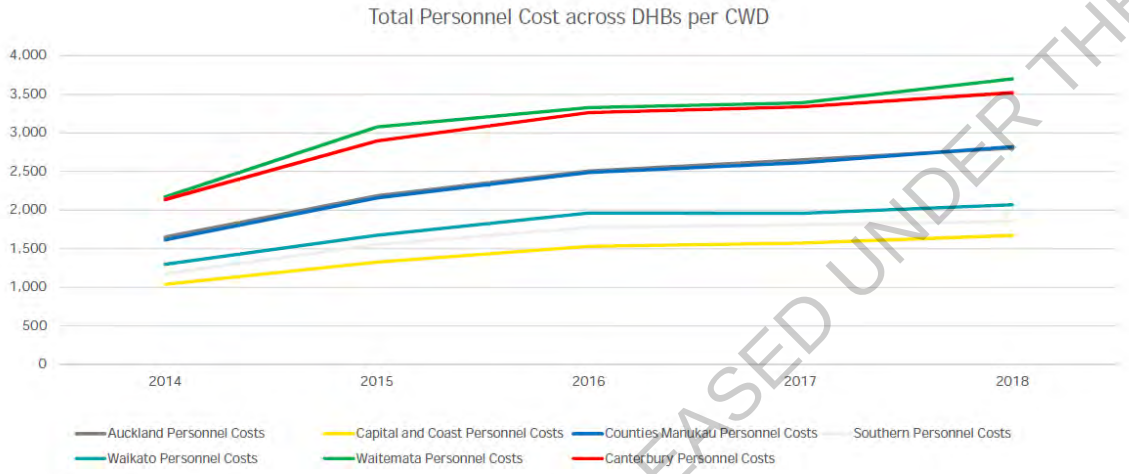
Deficit Drivers

Transition Costs	FTE Growth	Sick Leave and Annual Leave	Resourcing
▸ EY and CDHB have jointly compiled and agreed on the quantum of transition costs. ▸ Costs inclusive of: ASB readiness; stranded FTE as a result of ongoing delays; and out sourcing/out placement of theatre activity.	▸ Approximate $10M overspend across FY 17/18 and Q3 18/19 ▸ FTE growth since 1 July 2018 phasing into the next financial year has impacted the DHBs operating position by circa $25M (this is increased headcount only) ▸ CDHB needs to consider the redistribution of resource from within existing FTE levels	▸ Absenteeism over the last 4 years has climbed by 18.5% with a FY 18 estimated spend of $21m. ▸ A CDHB report acknowledges that over FY18-19 ~450 staff (5.5% of total DHB workforce) / day were off work, sick. ▸ Annual leave liability increasing; concerns around approval and tracking of leave	▸ Gap in nursing resource allocation and occupancy despite the CDHB efforts to reduce the variability with a target of 90% accuracy. ▸ Further work is required to see if the gap between occupancy and resourcing can be improved.

Personnel cost per CWD – all staff

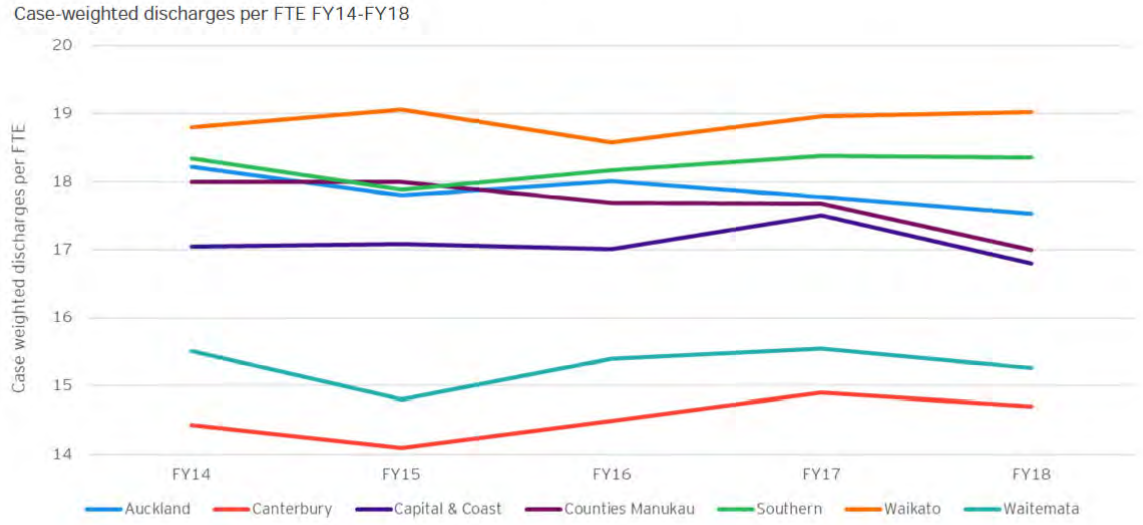
▸ When the Case-weighted discharge per FTE translated into personnel cost per case-weighted discharge, the Canterbury personnel cost is significantly higher than all peers except Waitemata DHB, and almost twice that of Capital and Coast / Waikato / Southern DHBs



*CDHB, 2019; The story of absence.doc.

Case-weighted discharges per FTE (total)

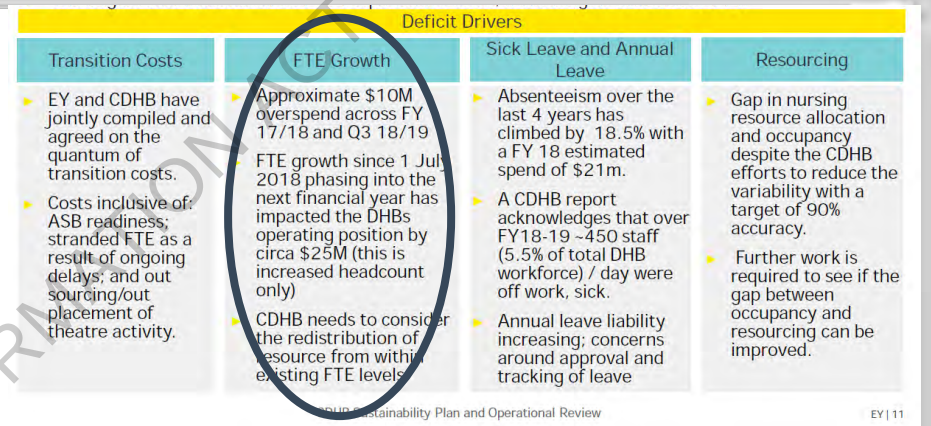
▸ Further to the increased personnel cost, when case-weighted discharges are explored on a per FTE basis CDHB has the lowest ratio of peer DHBs; this indicates that Canterbury provides care for a lower case load complexity on a per FTE basis or greater FTEs for production levels.



Source: NMDS, CDHB, EY analysis

Is “All FTE” the right comparison?

Service	Canterbury FTE	Auckland	Counties	Waitemata	Waikato	Capital and Coast	Southern
Food	218	O	O	O	O	O	O
Laundry	128	O	O	O	O	O	O
SIAPO and Regional	27	O	O	O	O	O	O
Labs –hospital, national, regional and some community	311	Hospital, national, regional				O	O
Brackenridge	281	X	X	X	X	X	X
Forensics (regional)	179			Regional service			
Spinal – national	86	X	X National	X	X	X	X
Clinical Research	42	?	?	?	?	?	?
District Nursing	O (184 fte)	Employed	Employed	Employed	Employed	Employed	Employed



This is not an exhaustive reconciliation

Other DHBs variously outsource their procurement, IT, maintenance and engineering functions .

This means that the analysis using all FTE included 1,088 FTE that are not counted in some or all of the other DHBs

This is 12.8% of our workforce.

Adjusting for this difference would place Canterbury close to Capital and Coast and the middle of the range for caseweighted discharges per FTE

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Building a better working world

Deficit Drivers

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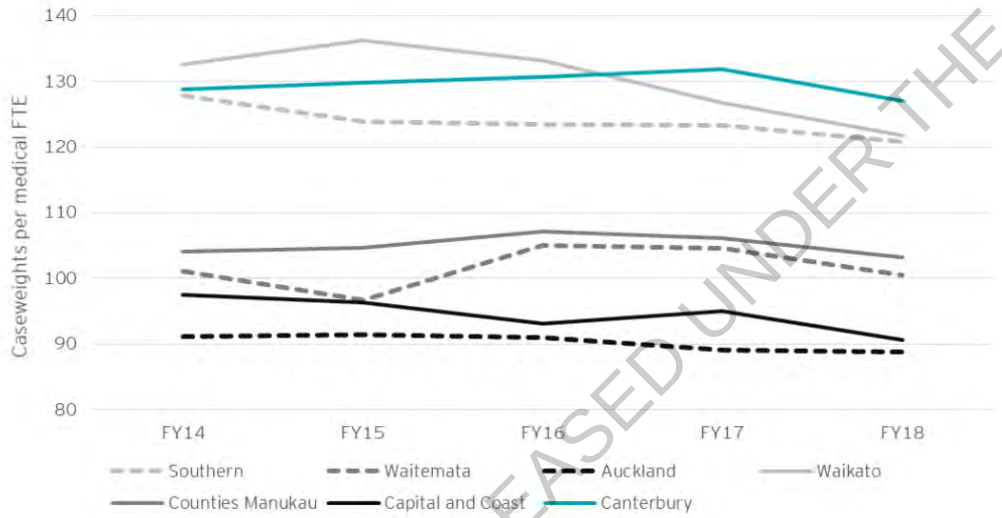
Case-weights per medical FTE (FY14-18)

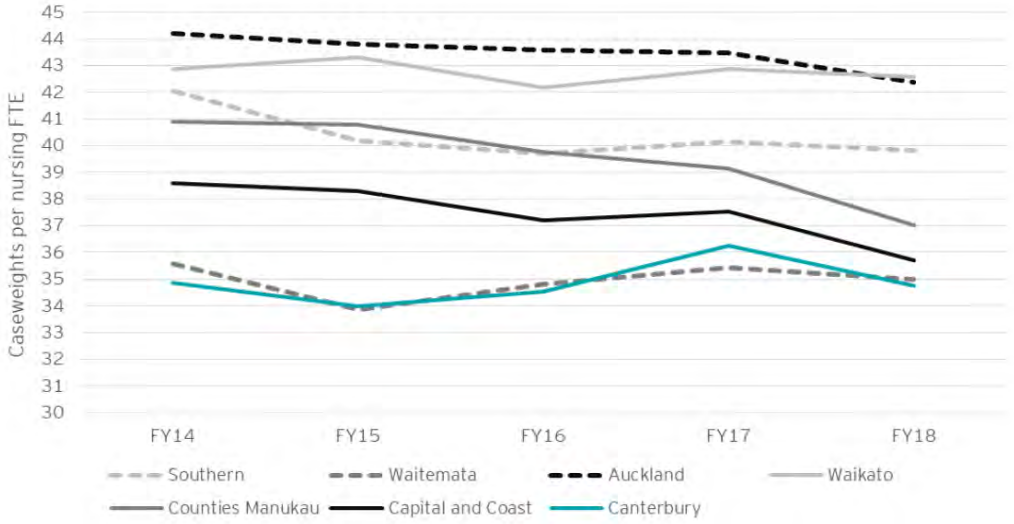
▸ Given the distribution of case-weights over specialty, service level, by DHB of service and the local / IDF mix, the following graph provides the case-weights per medical FTE inclusive of both provider and outsourced medical FTE



Source: NMDS, MoH Keylines Summary Reports

Case-weights per nursing FTE (FY14-18)

▸ Similar to the case-weights per medical FTE, here nursing FTE is inclusive of provider and outsourced nursing FTE



Source: NMDS, MoH Keylines Summary Reports

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Deficit Drivers

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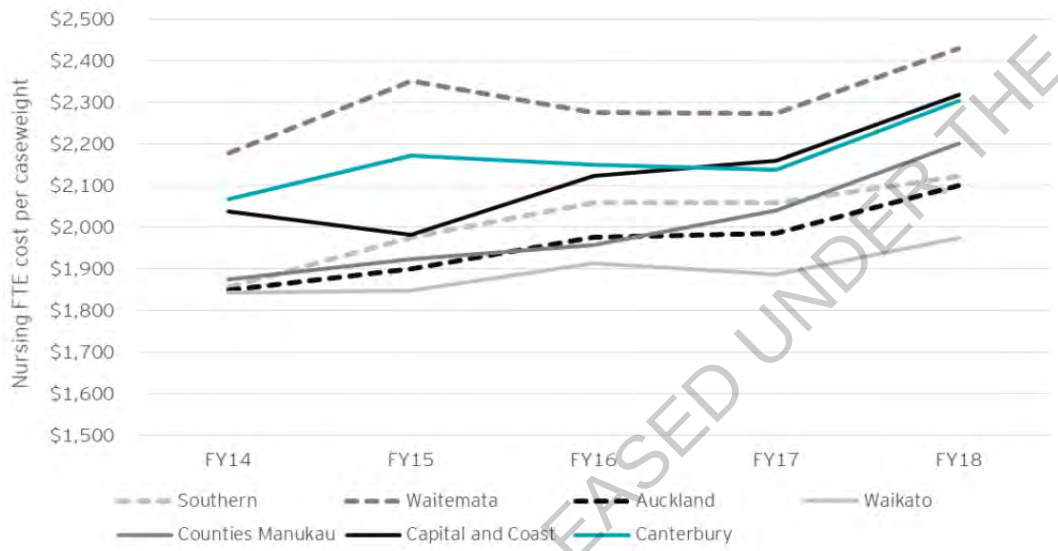
Nursing cost per case-weight (FY14-18)

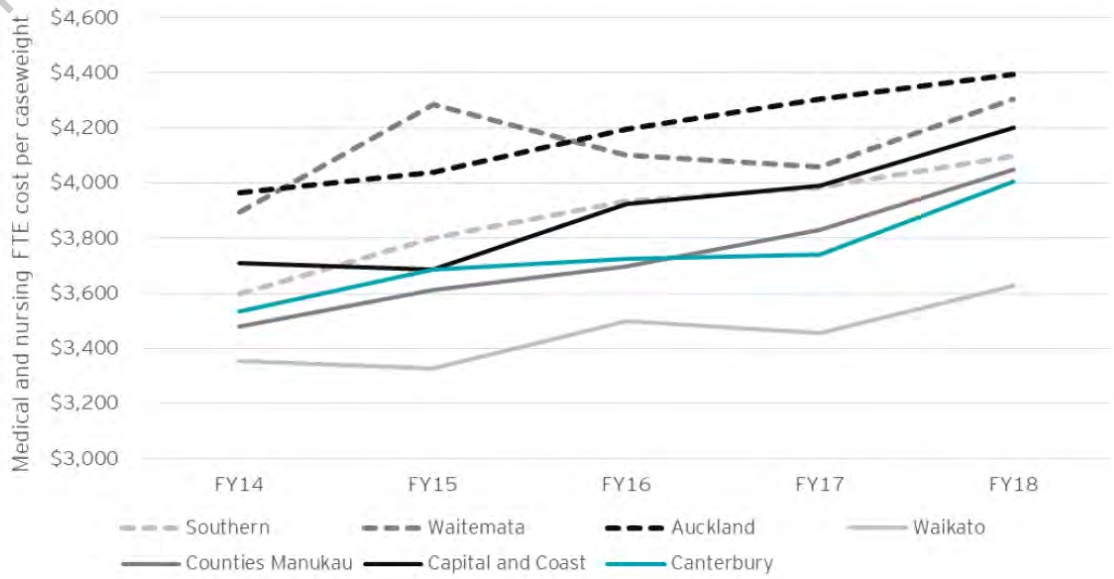
▸ The following graph presents the nursing FTE cost per case-weight as per the methodology used for medical personnel



Source: NMDS, MoH Keylines Summary Reports

Med./Nursing cost per case-weight (FY14-18)

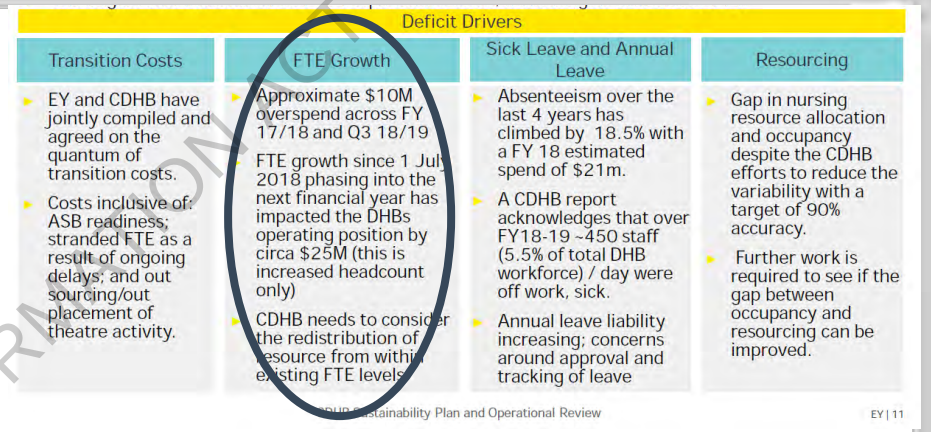
▸ The following graph presents the medical and nursing FTE cost per case-weight as per the methodology used for medical and nursing personnel



Source: NMDS, MoH Keylines Summary Reports

FY18 total case weights (DHB of service)							
	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital Coast	Southern
Med	41,939	45,388	58,382	35,119	40,284	26,451	21,864
Surg	55,116	33,818	74,705	44,680	51,698	37,340	31,125
AT&R	10,525	6,043	4,620	7,147	8,595	3,707	4,131
Mental health	10,681	7,946	7,432	5,088	5,272	6,025	4,093
Maternity/neonatal	14,277	9,778	12,684	19,171	9,132	9,870	6,122
Total	132,494	102,971	157,824	111,206	114,980	83,393	67,333

FY18 proportion case weights and funding (DHB of service)							
	Canterbury	Waitemata	Auckland	Counties Manukau	Waikato	Capital Coast	Southern
Med	15.6%	16.8%	21.7%	13.0%	15.0%	9.8%	8.1%
Surg	16.8%	10.3%	22.7%	13.6%	15.7%	11.4%	9.5%
AT&R	23.5%	13.5%	10.3%	16.0%	19.2%	8.3%	9.2%
Mental health	23.0%	17.1%	16.0%	10.9%	11.3%	12.9%	8.8%
Maternity/neonatal	17.6%	12.1%	15.7%	23.7%	11.3%	12.2%	7.6%
Total Activity	17.2%	13.4%	20.5%	14.4%	14.9%	10.8%	8.7%
Funding	16.1%	12.6%	22.3%	14.2%	14.2%	11.3%	9.3%



The greater caseweight delivery in mental health has associated staffing requirements as Canterbury delivers 41,000 more bed days (55%) than expected on a relative funding basis. This adds considerably to the FTE count for nursing.

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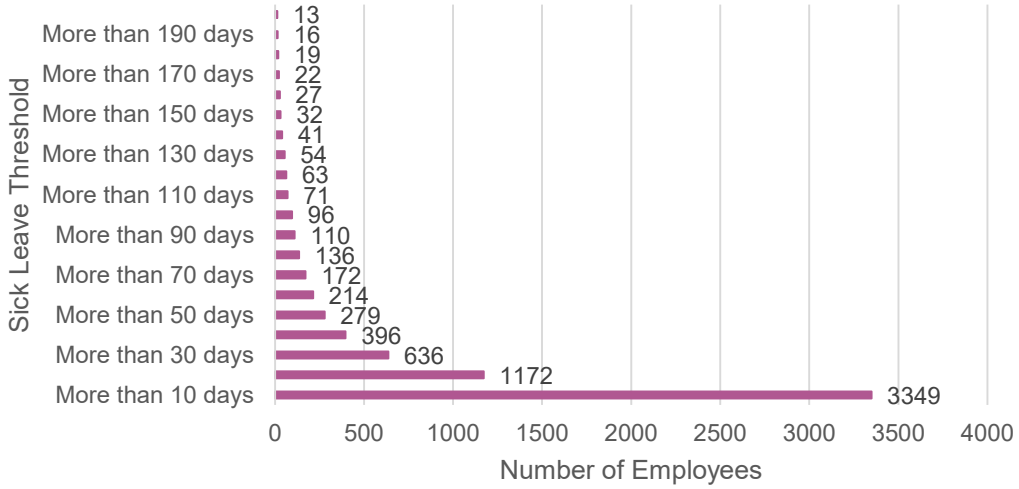
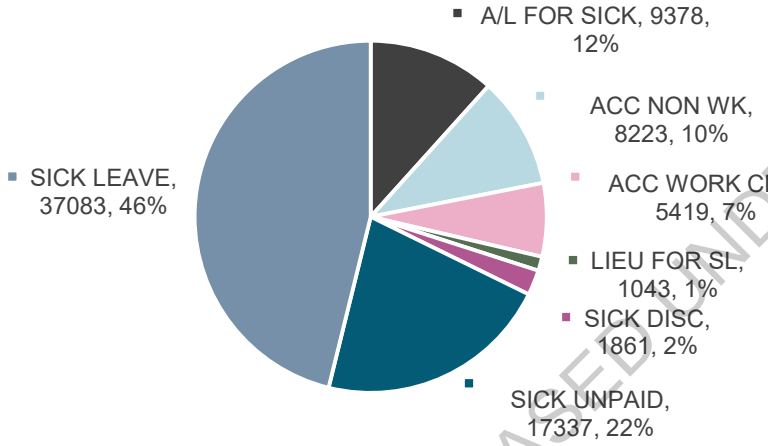
Number of employees by threshold

(Source: Payroll data for 12 months prior to Jan 2019)



Days sick leave by type – all employees with over 10 days sick leave taken



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CDHB Sustainability Plan and Operational Review

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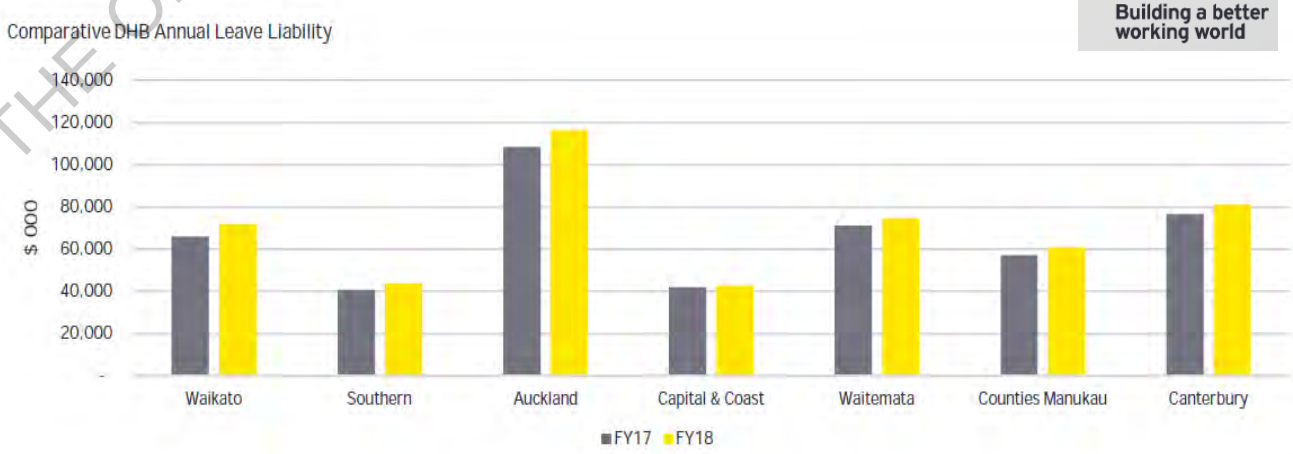

CDHB Sustainability Plan and Operational Review

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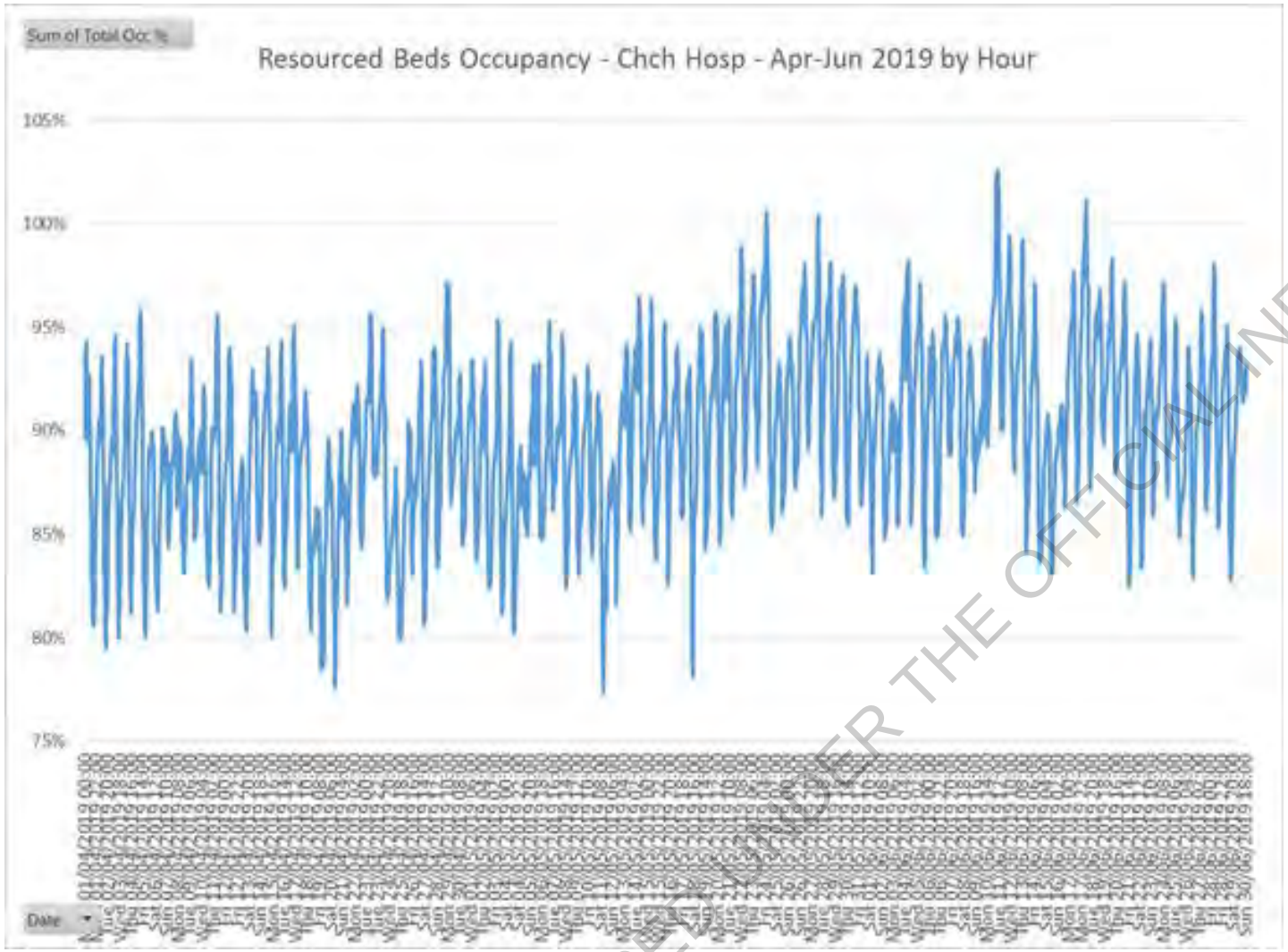

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	CDHB needs to consider the redistribution of resource from within existing FTE levels	Annual leave liability increasing; concerns around approval and tracking of leave	

CDHB Sustainability Plan and Operational Review

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In effect there are two ways to reduce costs;

1) by reducing length of stay and thus increasing bed utilisation and in the past 5 years in Med/Surg we have increased from 140 patients per bed per annum to 183 patients per bed per annum
2) by reducing resourced beds however the admission and discharge load stays irrespective of the length of stay and is in effect a minimum functional nursing capacity required

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Funder Arm – Line by Line

830 standard agreements

757 bespoke agreements

Must do and Need to do = 95%

This iteration showing $42M of Discretionary/strategic spend

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'EY suggests-1-2% of total spend'
$7.5M to $15M

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With Focus We Believe Scenario 2 is Achievable

Scenario – Reduce deficit before IDCC to $16M by 21/22