Harnessing the power of patient-level costing to support improvements in patient care

Alfa D'Amato Director ABM,

Vice-President, Patient Classification Systems International

MIPA, MPA, MHSM, MPASR

CONTENT

I
Introduction

+ NSW Health at a glance

+ Activity Based Management

+ Results

+ Leading Better Value Care

II
Safety and Quality

+ Current Developments in Safety and Quality

+ Tools for users

III
Audit

+ Making the data fit for purpose

Julia Heberle
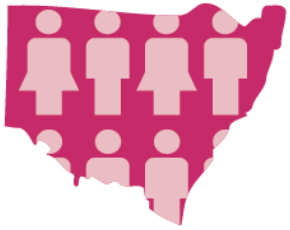Deputy-Director, Patient Costing Improvements

IV
Case studies

+ Case Studies from the clinical practice

Susan Dunn
Deputy-Director, Stakeholders and Clinical Engagement

The NSW public health system is world class
It is the largest public health system in Australia

7.7 MILLION
NSW RESIDENTS
ON **809,444** SQ. KM

230
HOSPITALS

1.9 MILLION
INPATIENT EPISODES

111,000
DEDICATED FTE STAFF

2.7 MILLION
EMERGENCY DEPARTMENT
ATTENDANCES

$20.7 BILLION
2015-16 BUDGET

963,562
AMBULANCE EMERGENCY
RESPONSES

218,942
PLANNED SURGICAL
CASES PERFORMED

16,208
COMPACK HOME PACKAGES
DELIVERED TO PATIENTS
BEING DISCHARGED
FROM HOSPITALS

Activity Based Management in NSW

- Activity Based Management (ABM) drives evidence-based decisions. It utilises patient level costing data to inform clinical, operational and strategic objectives. This contributes to maximising value for patient care.

- Intentionally moved away from ABF as this data is to support the management of the system not only the funding side of it.
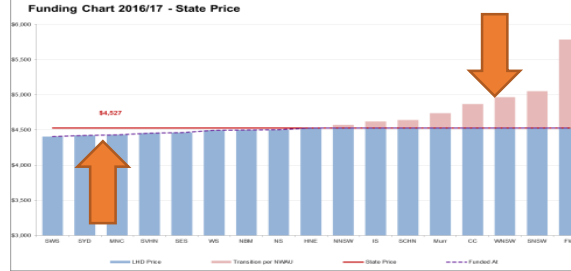
Activity Based Management in NSW

2012/13 → 2013/14

$0

2014/15 → 2017/18

2018/19 →

$X,XXX

IMPROVED HEALTH OUTCOMES

Neutrality

Convergence

State Efficient Price

VBM

- Keep the system operating
- Transparency
- Purchasing levers

- Transition Grant Reduction ($311M cash)
- Incentives ($62M cash)
- Recognised Structural Cost ($64.7M)
- Purchasing levers

- Determine "Efficient"
- Best Practice
- Bundle Payments
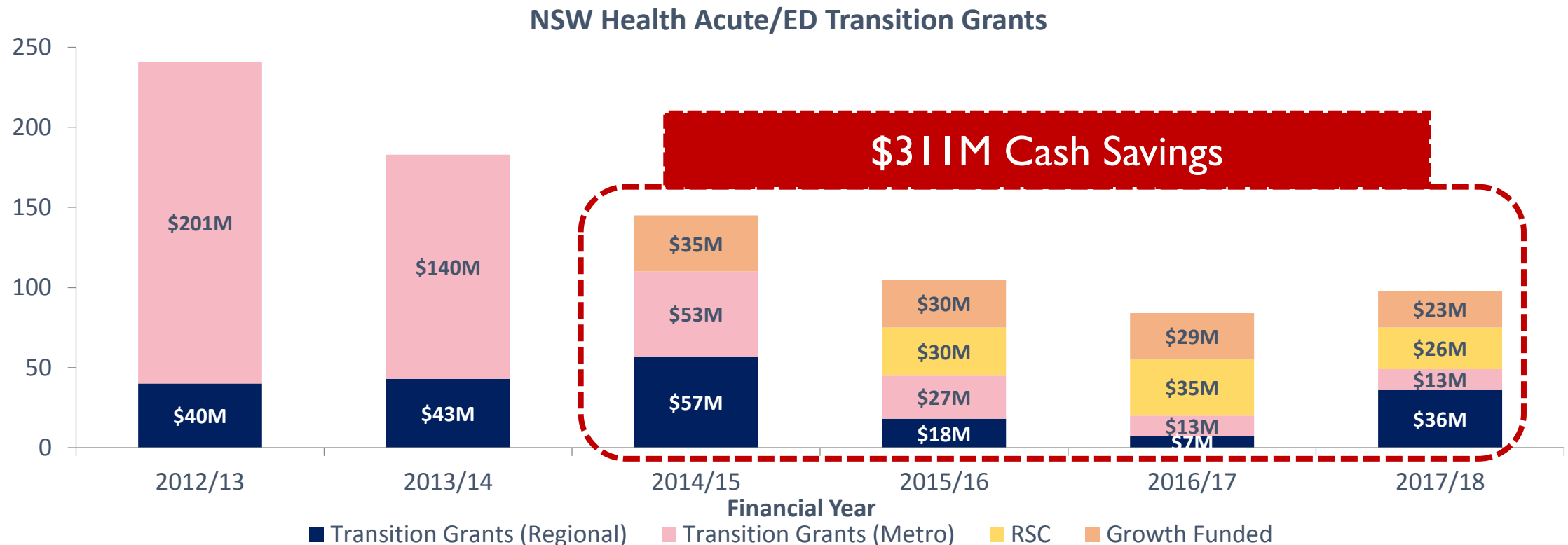- Acute & ED transition remove
- **Safety and Quality**

- V to V
- Safety and Quality price
- Purchasing outcomes
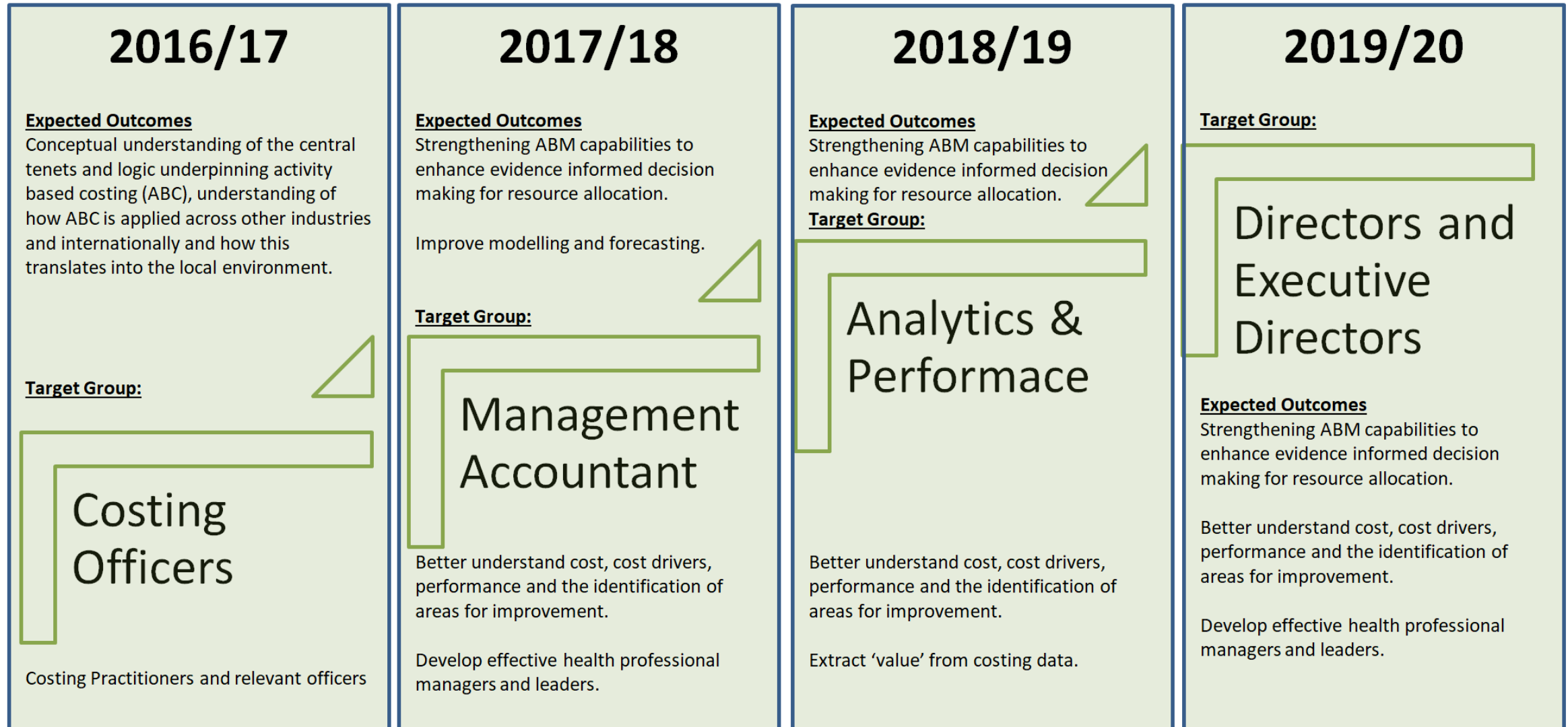
NSW Health State Price 2017/18

- <u>Transition Grants (TG)</u> - If a LHD/SHN is operating above the State Price, they receive transition grants. TG is the difference between the State Price and the LHD/SHN Projected Average Cost (PAC) to keep the system safe and operating, with expectation that TG will be removed eventually.

- Acknowledging that rural LHDs face challenges in achieving economies of scale, RSC was introduced not to penalise regional LHDs.

NSW Health Acute/ED Transition Grants

$311M Cash Savings

Transition Grants (Regional)	Transition Grants (Metro)	RSC	Growth Funded

Financial Year

2012/13 — $201M, $40M
2013/14 — $140M, $43M
2014/15 — $35M, $53M, $57M
2015/16 — $30M, $30M, $27M, $18M
2016/17 — $29M, $35M, $13M, $7M
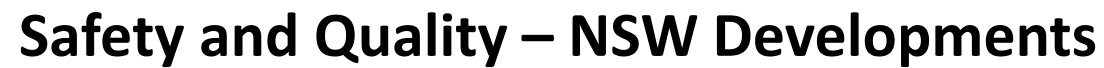2017/18 — $23M, $26M, $13M, $36M

From Volume to Value in NSW Health

- Under Activity Based Management, clinicians and managers are provided with accurate and timely information to support strategies to achieve better value care through continuous improvement.

- Actions to drive better value care have included introduction of
  - an interim classification for purchasing mental health services;
  - Recognised Structural Costs where applicable in recognition of higher fixed costs and economies of scale for rural and remote settings;
  - and **capability building** on Activity Based Management for staff across NSW Health.

NSW Health capability investment – LSE and UTS

2016/17

Expected Outcomes
Conceptual understanding of the central tenets and logic underpinning activity based costing (ABC), understanding of how ABC is applied across other industries and internationally and how this translates into the local environment.

Target Group:

Costing Officers

Costing Practitioners and relevant officers

2017/18

Expected Outcomes
Strengthening ABM capabilities to enhance evidence informed decision making for resource allocation.

Improve modelling and forecasting.

Target Group:

Management Accountant

Better understand cost, cost drivers, performance and the identification of areas for improvement.

Develop effective health professional managers and leaders.

2018/19

Expected Outcomes
Strengthening ABM capabilities to enhance evidence informed decision making for resource allocation.

Target Group:

Analytics & Performace

Better understand cost, cost drivers, performance and the identification of areas for improvement.

Extract 'value' from costing data.

2019/20

Target Group:

Directors and Executive Directors

Expected Outcomes
Strengthening ABM capabilities to enhance evidence informed decision making for resource allocation.

Better understand cost, cost drivers, performance and the identification of areas for improvement.

Develop effective health professional managers and leaders.

Safety and Quality – NSW Developments

Benchmarking as a learning opportunity

- "Benchmarking is a practice that uses relative performance – the ranking of entities' performance – to identify entities with superior performance, and this entity is then considered one from which it makes sense to learn. [..] it is possible to enhance performance by learning from the successful practices of others."[1]

1- Buckmaster and Mouritsen (2017), Australian Accounting Review no.82 Vol.27 Issue 3 2017

Hospital Acquired Complication report - All

Analyse Hospital Acquired Complications by comparing Average Cost/NWAU between Activity with HAC and without HAC
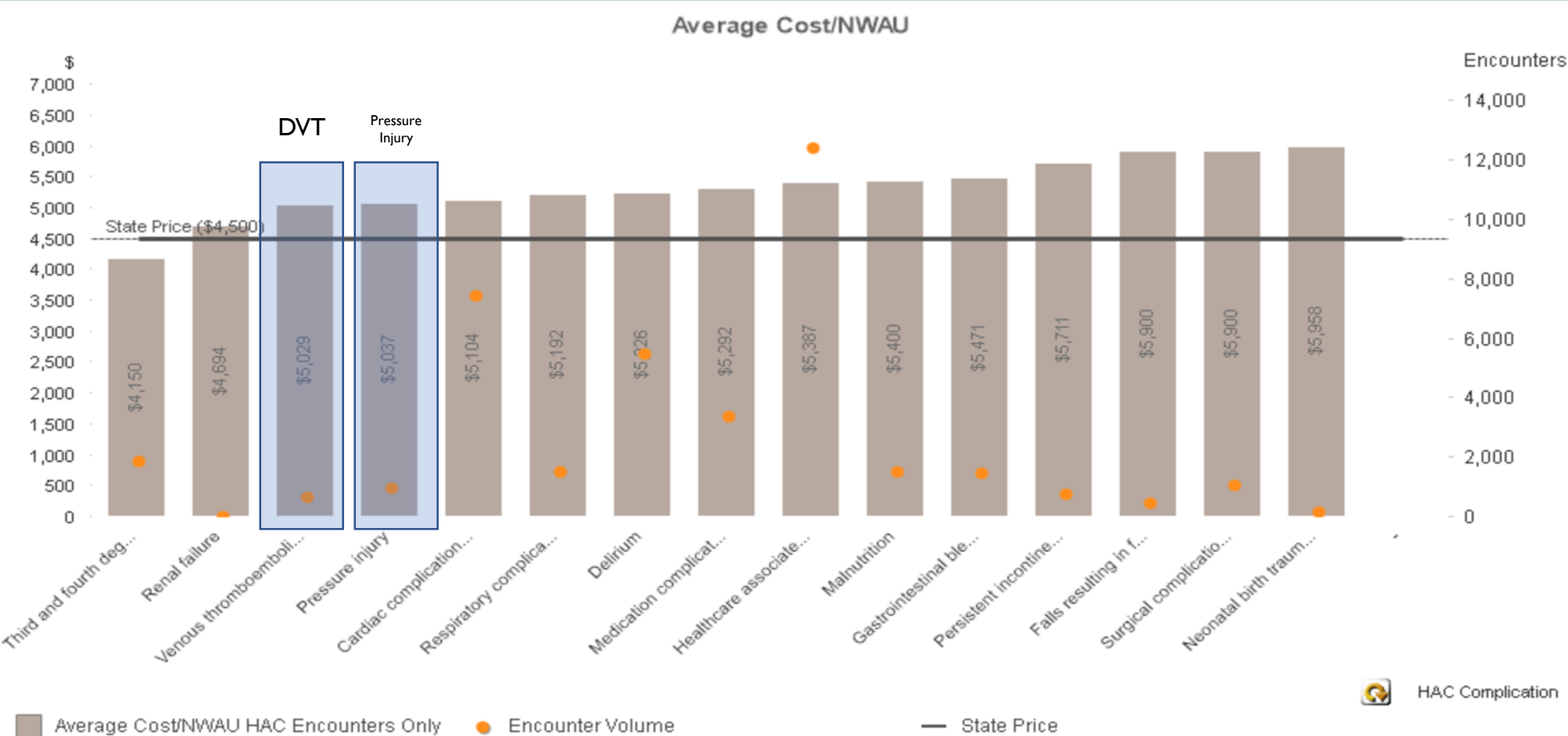
HAC Encounters only: Average Cost/NWAU	Average Cost/NWAU Variance	Excluding HAC Encounters: Average Cost/NWAU
$5,286	**19.00%**	**$4,442**

Average Cost/NWAU

Chart bar values (Average Cost/NWAU HAC Encounters Only):

LHD/SHN	Value
NBM	$4,732
WNSW	$4,958
WS	$4,965
SYD	$5,032
SCHN	$5,044
MUR	$5,205
SES	$5,223
MNC	$5,250
SWS	$5,261
SVH	$5,287
HNE	$5,326
NS	$5,561
IS	$5,642
NNSW	$5,752
FW	$6,381
SNSW	$6,508
CC	$6,972

State Price ($4,500)

Legend:
- Average Cost/NWAU HAC Encounters Only
- Average Cost/NWAU Variance
- State Price

Buttons: Avg Cost/NWAU, Avg Cost/Encounter, ALOS, Encounter Volume, Total Cost

Hospital Acquired Complication report - All

Analyse Hospital Acquired Complications by comparing Average Cost/NWAU between Activity with HAC and without HAC
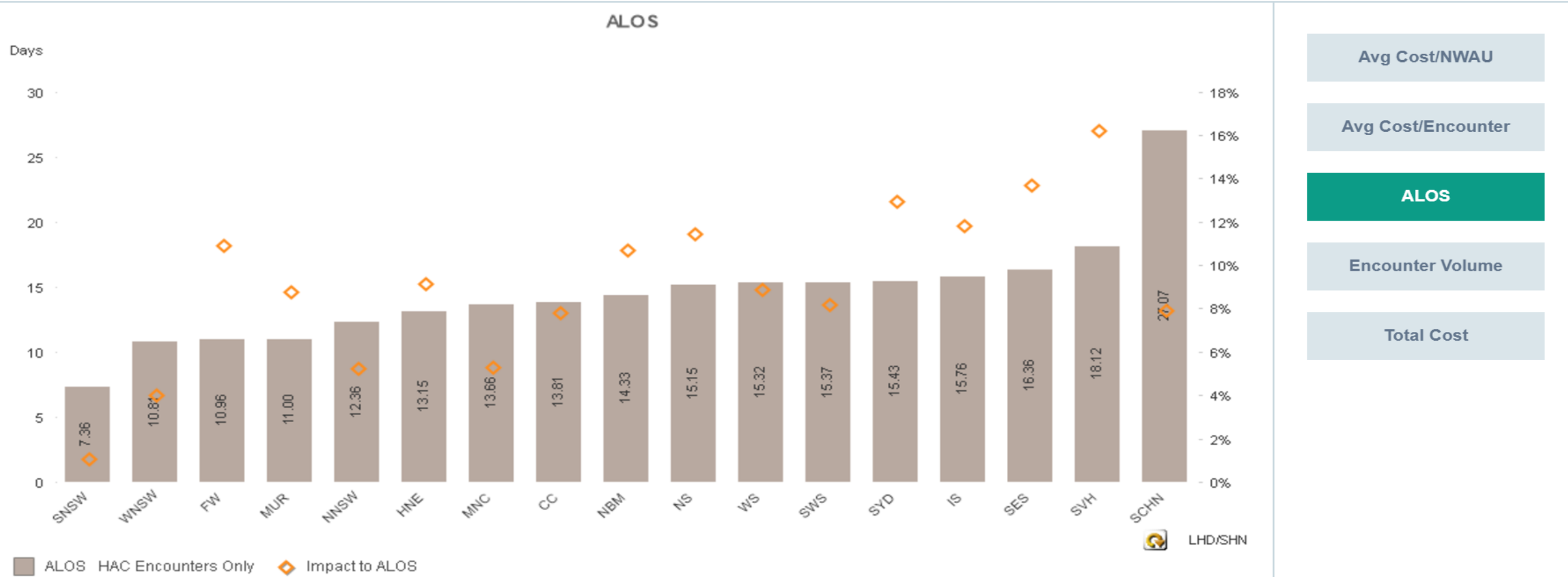
HAC Encounters only: Average Cost/NWAU	Average Cost/NWAU Variance	Excluding HAC Encounters: Average Cost/NWAU
$5,286	**19.00%**	**$4,442**

Average Cost/NWAU

DVT — $5,029
Pressure Injury — $5,037

State Price ($4,500)

Bar values: $4,150, $4,694, $5,029, $5,037, $5,104, $5,192, $5,226, $5,292, $5,387, $5,400, $5,471, $5,711, $5,900, $5,900, $5,958

Categories: Third and fourth deg…, Renal failure, Venous thromboemboli…, Pressure injury, Cardiac complication…, Respiratory complica…, Delirium, Medication complicat…, Healthcare associate…, Malnutrition, Gastrointestinal ble…, Persistent incontine…, Falls resulting in f…, Surgical complicatio…, Neonatal birth traum…

Right axis: Encounters 0 – 14,000

Buttons: Avg Cost/NWAU | Avg Cost/Encounter | ALOS | Encounter Volume | Total Cost

Legend: Average Cost/NWAU HAC Encounters Only ● Encounter Volume — State Price   HAC Complication

Hospital Acquired Complication report - All

Analyse Hospital Acquired Complications by comparing ALOS between Activity with HAC and without HAC

HAC Encounters only: ALOS

14.88

Impact to ALOS

9.60%

Excluding HAC Encounters: ALOS

2.57

ALOS

Days

Avg Cost/NWAU

Avg Cost/Encounter

ALOS

Encounter Volume

Total Cost

Chart values (ALOS HAC Encounters Only): SNSW 7.36, WNSW 10.84, FW 10.96, MUR 11.00, NNSW 12.36, HNE 13.15, MNC 13.66, CC 13.81, NBM 14.33, NS 15.15, WS 15.32, SWS 15.37, SYD 15.43, IS 15.76, SES 16.36, SVH 18.12, SCHN 27.07

LHD/SHN

■ ALOS HAC Encounters Only ◆ Impact to ALOS

Impact to ALOS: ((ALOS for All Encounters) - (ALOS for excluding HAC Encounters)) / (ALOS for excluding HAC Encounters)
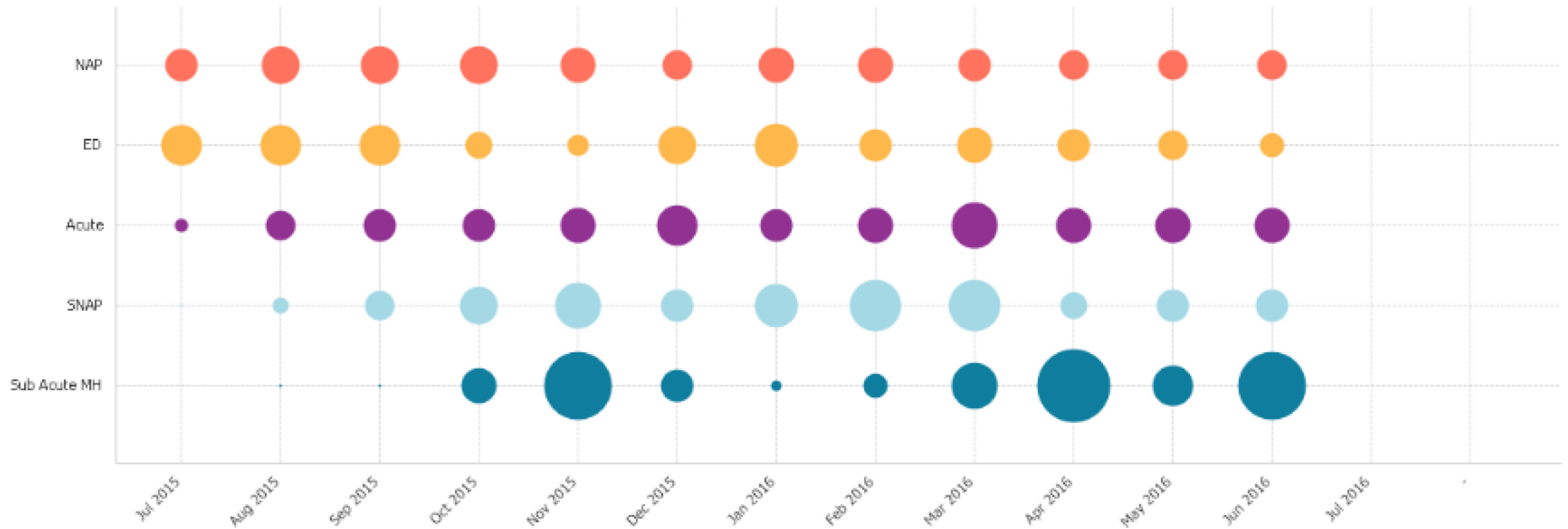
Patient Level Costing Audit Program in NSW

Patient Level Costing Audit Program Development

NSW Auditor General's Recommendation to Parliament in 2013

Program development and pilot in 2014

Mandatory Audit and a Condition of Subsidy from 2014/15

Internal Audit Teams undertake audit (where possible)

Attestation Certificate and Final Report submitted to NSW Secretary, Health

District and Network Return (DNR) Audit Program

Version 3.0

July 2017

Activity Based Management

NSW GOVERNMENT | Health
Health System Support Group
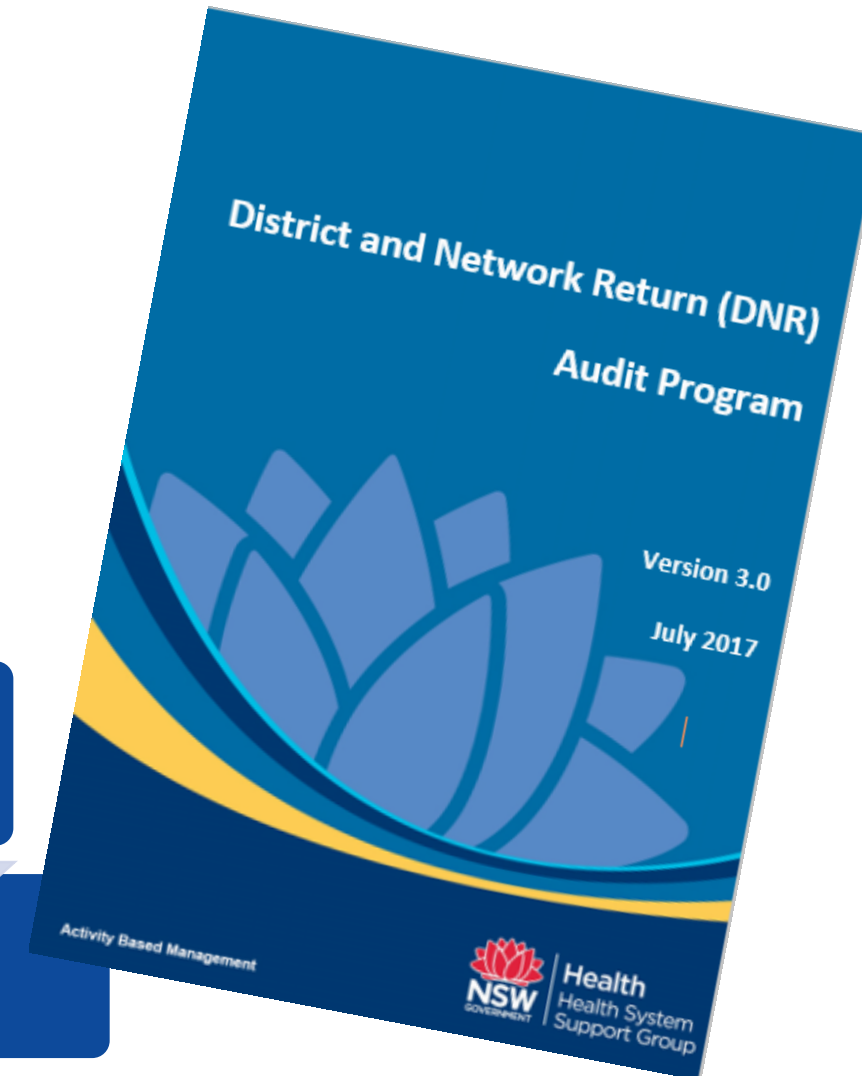
Patient Level Costing Audit Program

Good patient costing data is priceless

Audit Objectives
• Fit for purpose
• Consistent Data
• Reliable Data

Three Lines of Inquiry
• Is patient data reliable and accurate?
• Are costing methodologies used appropriate and robust?
• Does preparation of the DNR comply with the NSW CAG?

Patient Level Costing Audit Program

Patient level costing is a key health service management resource

Program Focus	Program Concepts	Program Challenges
• Risk based • Governance processes • Inputs vs outputs • Process vs transactional	• Materiality • Elements of subjectivity • Continuous improvement • Not punitive	• Keeping the scope manageable • Small costing knowledge base • Many staff indirectly involved in costing

Patient Level Costing Audit Program
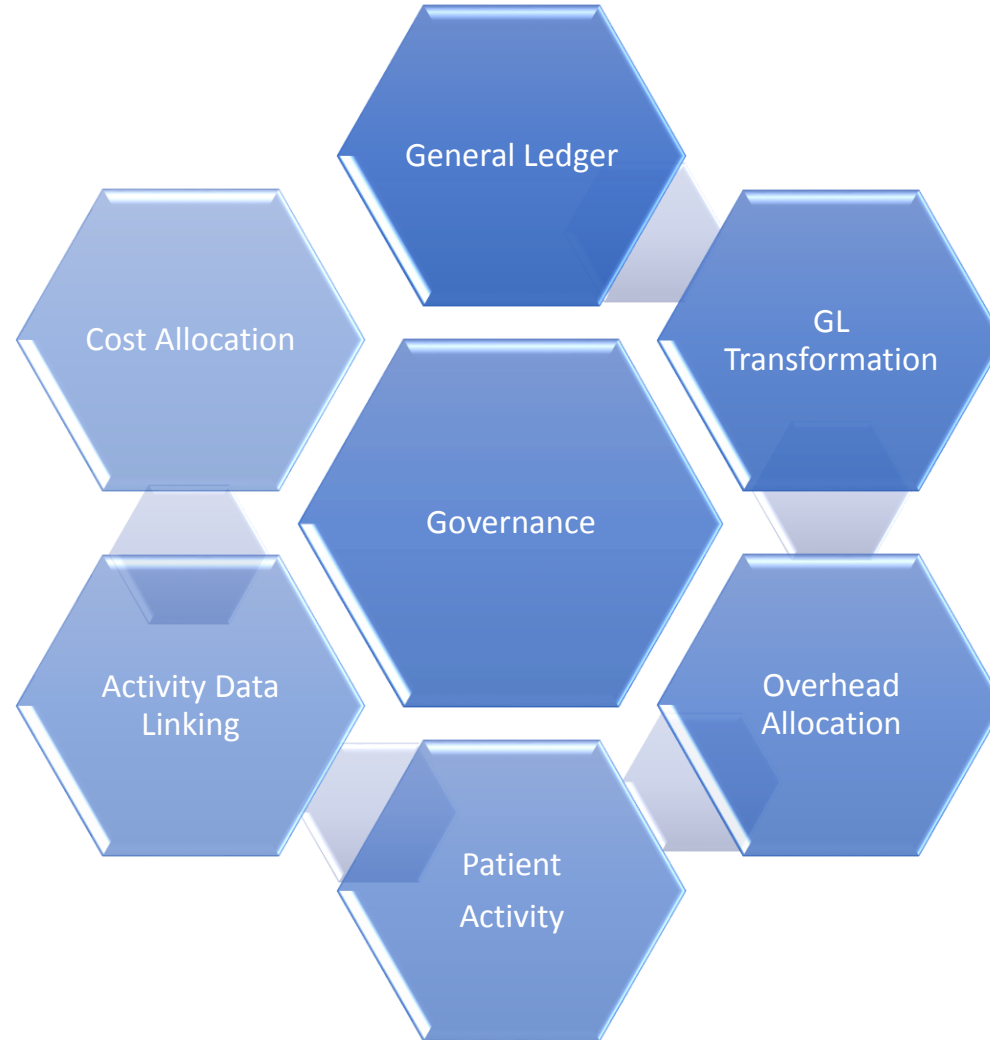
Patient Level Costing Audit Program **Value**

- Authority of Auditors and the audit process

- Board Audit and Risk Sub-Committee oversight

- Recommendations must be monitored and progress reported

- Peer review process

- Knowledge transfer to other Internal Audit programs

Stakeholder Engagement – Case studies

Stakeholder Engagement

- Awareness
  - ABM Portal, UCV
- Action
  - Understand the rules
- Understanding
  - Redesign process locally
- Habit
  - Model of care performance
- Mastery
  - Business as Usual
  - Business Case development

Curator Process to gain Insight

- Local Health District
- Hospital
- Specialty
- Disease process
- Patient journey
  - Appropriate
  - Safe
  - Timely intervention

: ED Sepsis *Awareness*

CLINICAL VARIATION   PATIENT

State Pricing

Current Selections

NAP Pricing Flag   Y
Stream   ED
Activity Year   2015-2016

ALOS for ED

LHD/SHN	MUR	FW	NBM	CC	HNE	SYD	NNSW	SWS	NS	SES	MNC	SCHN	WS	IS	WNSW	SVH
Inpatient ALOS (days)	4.03	4.43	5.45	6.13	6.33	6.83	7.09	7.16	7.21	7.22	7.60	8.10	8.38	9.15	9.23	9.77

2015-2016 Inpatient ALOS (days) — Current Selection Avg= 6.60
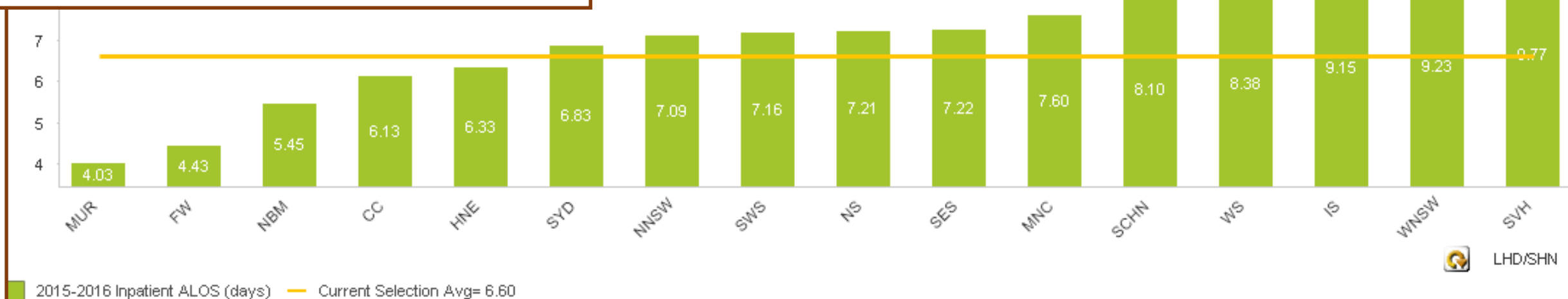
Safety and Quality: ED Sepsis   *Awareness*

QUICK REPORT - PATIENT ANALYSIS - HNE

User defined report to query the cost and activity data based on dimensions and measures related to activity, expense and cost metrics.

Current Selections

NAP Pricing Flag	▾	Y
ActivityYear	▾	2015-2016
WIP	▾	No
DNR Patient Number	▾	12 of 8808228
LHD/SHN	▾	Hunter New England LHD

Change to ABM Patient No   **Aggregate Report**

Dimensions

☐ ABF Service Stream	☑ ED Diagnosis	☐ LHD Of Usual Residence	☐ SRG
☐ ABFStatus	☐ Encounter Number	☐ LHD/SHN	☑ Start Date
☐ Activity Year	☐ Establishment Type	☐ MDC	
☐ Admission Category	☐ Ethnic Origin	☐ Mode of Arrival	
☐ Admission Type	☐ Facility	☐ Mode of Separation	
☐ ADRG	☐ Facility ID	☑ Patient	

Activity Metrics

☐ Bed Days
☑ ED ALOS
☐ Encounter
☐ HAC Frequency
☐ ICU Hours
☑ Inpatient ALOS

Cost Metrics

☐ Avg Cost / Enct
☑ Avg Cost / NWAU
☐ Cost Ratio
☐ Cost Ratio Performe
☐ Total Cost($)
☐ Total NWAU Cost($)

Cost Bucket Metrics

☐ Allied	☐ Ward&ED Supplies
☐ Critical Care	
☐ Exclude	
☐ Imag	
☐ Med	
☐ Non Clinical	

Start Date	Class	ED Diagnosis	Patient No	Representation	Avg Cost Per NWAU(17)	IP ALOS (Days)	ED ALOS (Hrs)
31/08/2015	016 - Adm_T2_Circulatory system illness	I20.0-Unstable angina	J225-000	N	$7,482	N/A	10.65
31/08/2015	F60B - CIRC DIS+AMI-INVA INV PR,T<5D	-	J225-000	N/A	$13,120	3.00	N/A
7/09/2015	081 - Adm_T2_Urolsys illness	N17.9-Acute kidney failure unspecified	J225-000	N	$2,764	N/A	4.15
7/09/2015	L67A - OTH KIDNY&URNRY TRCT DIS, MAJC	-	J225-000	N/A	$9,198	9.00	N/A
18/09/2015	40.59 - Post Acute Care	-	J225-000	N/A	$3,119	N/A	N/A
3/02/2016	080 - Adm_T2_Sys infection	A41.9-Sepsis unspecified	J225-000	N	$3,566	N/A	4.17
3/02/2016	J64A - CELLULITIS, MAJC	-	J225-000	N/A	$8,842	12.00	N/A
18/02/2016	40.59 - Post Acute Care	-	J225-000	N/A	$3,119	N/A	N/A
21/03/2016	057 - N-A_T3_All other MDB groups	L98.9-Disorder of skin and subcutaneous tissue unspecified	J225-000	N	$6,407	N/A	3.58
22/03/2016	019 - Adm_T3_Blood/Imm syst illness	A41.9-Sepsis unspecified	J225-000	Y	$3,048	N/A	3.67
22/03/2016	F75B - OTHER CIRCULATORY DIS, INTC	-	J225-000	N/A	$9,658	13.00	N/A
30/05/2016	116 - N-A_T5_Illness of the skin	L03.9-Cellulitis unspecified	J225-000	N	$9,266	N/A	3.00

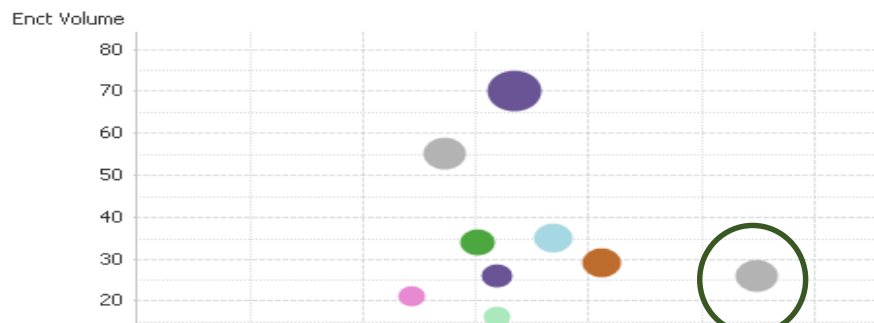# Nepean : I09 Spinal Fusion *Understanding to Insights*

CLINICAL VARIATION

Shows Total Encounters, ALOS and Avg Cost per Encounter (broken down into various cost buckets) by LHD/SHN, Facility and Class
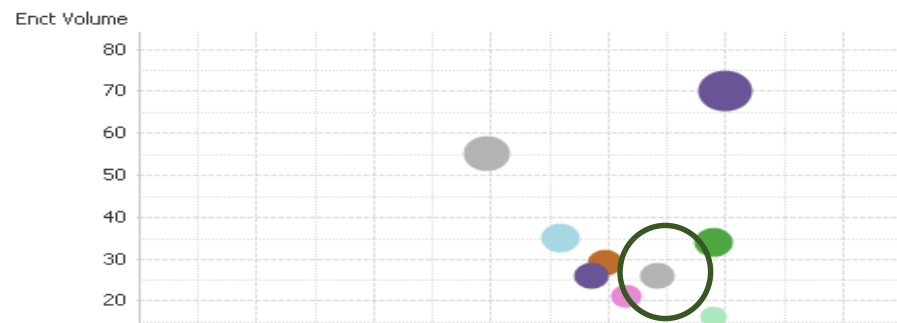
Current Selections

Peer Group		A1 Prin Referral
LHD Residence ID		19 of 33
ActivityYear		2015-2016
WIP		No
ADRG		I09 - SPINAL FUSION
Display Class		I09B
NAP Pricing Flag		Y

Avg Cost / Encounter • **Inpatient ALOS (Days)**

Facility legend: Concord, John Hunter, Liverpool, Nepean, Prince Alfred, Prince Wales, Royal Nth Shore, RPAH IRO, St George, St Vincent's, Westmead, Wollongong

Facility	Allied	Med	Nurse	Critical Care	Imag	OR	Path	Pharm	Pros	SPS	Ward&ED Supplies	Non Clinical	On Cost	Exclude	Avg Cost / Enct	Enc Vo
	1,379	1,972	3,622	1,913	627	8,276	614	261	11,279	5	977	1,490	1,315	465	34,196	
Royal Nth Shore	845	1,531	3,823	3,991	548	7,490	880	300	9,642	17	1,370	1,217	1,467	424	33,547	
John Hunter	1,269	1,435	2,399	365	545	5,242	275	90	12,680	0	653	1,301	852	300	27,407	
Wollongong	1,313	2,619	3,361	601	368	10,181	483	229	14,110	13	555	1,480	1,286	424	37,024	
Westmead	1,447	2,745	5,304	537	790	7,146	784	427	6,383	0	912	1,912	1,436	445	30,268	
Prince Wales	3,434	2,051	3,748	2,169	546	11,373	671	343	11,671	0	1,369	1,627	1,586	646	41,233	
St George	1,028	2,010	3,844	803	703	9,303	463	221	9,915	0	600	1,349	1,252	469	31,959	
Nepean	1,772	2,939	3,673	3,049	695	13,655	617	421	23,427	0	773	1,497	1,641	737	54,896	
Liverpool	633	871	2,602	419	606	6,310	283	155	9,365	0	950	1,141	766	309	24,408	
St Vincent's	1,286	2,006	4,448	2,409	906	7,398	823	370	6,444	0	1,151	2,275	1,532	864	31,912	
Prince Alfred	1,372	2,329	3,849	6,572	1,350	9,427	923	110	7,754	0	1,816	2,259	1,804	482	40,046	
Concord	1,464	2,443	3,953	1,709	710	6,174	845	117	8,288	0	996	1,804	1,422	297	30,221	
RPAH IRO	698	310	1,328	0	194	2,956	291	76	1,743	0	284	644	389	94	9,007	

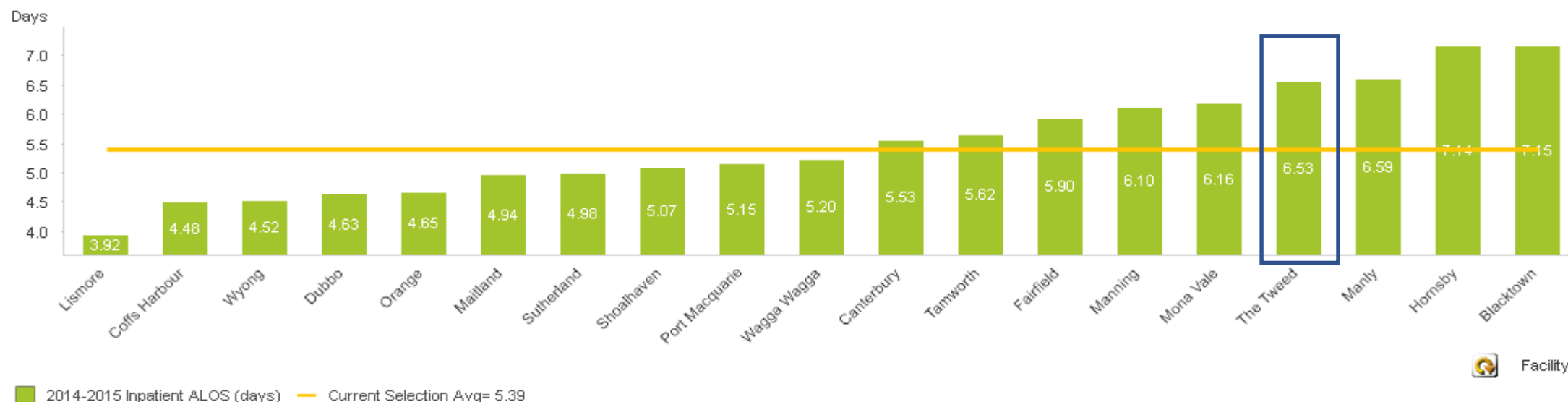# Northern NSW - THK   *Habit to Mastery*

BENCHMARK

Benchmark Encounter Volume, Length of Stay, Average Cost and Variance to Price by LHD/SHN, Peer Group, Facility and Class

Current Selections

NAP Pricing Flag		Y
Stream		Acute
ActivityYear		2014-2015
WIP		No
Class		I04A - KNEE REPLACEMENT, MAJC, I04B - KNEE REPLACEMENT, MINC
Peer Group		B1-2 Major Hosp

Avg Cost/NWAU	Avg Cost/Encounter	Total Cost	**ALOS**	RSI	RCI	Encounter Volume	Total NWAU	Total Variance To Price

ALOS for Acute

Days

Facility	ALOS
Lismore	3.92
Coffs Harbour	4.48
Wyong	4.52
Dubbo	4.63
Orange	4.65
Maitland	4.94
Sutherland	4.98
Shoalhaven	5.07
Port Macquarie	5.15
Wagga Wagga	5.20
Canterbury	5.53
Tamworth	5.62
Fairfield	5.90
Manning	6.10
Mona Vale	6.16
The Tweed	6.53
Manly	6.59
Hornsby	7.14
Blacktown	7.15

■ 2014-2015 Inpatient ALOS (days)   ─ Current Selection Avg= 5.39

Facility

Susan Dunn

Redesign Process

Case for Change:

 110 bed days

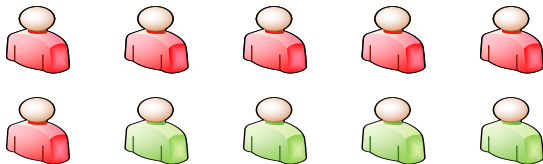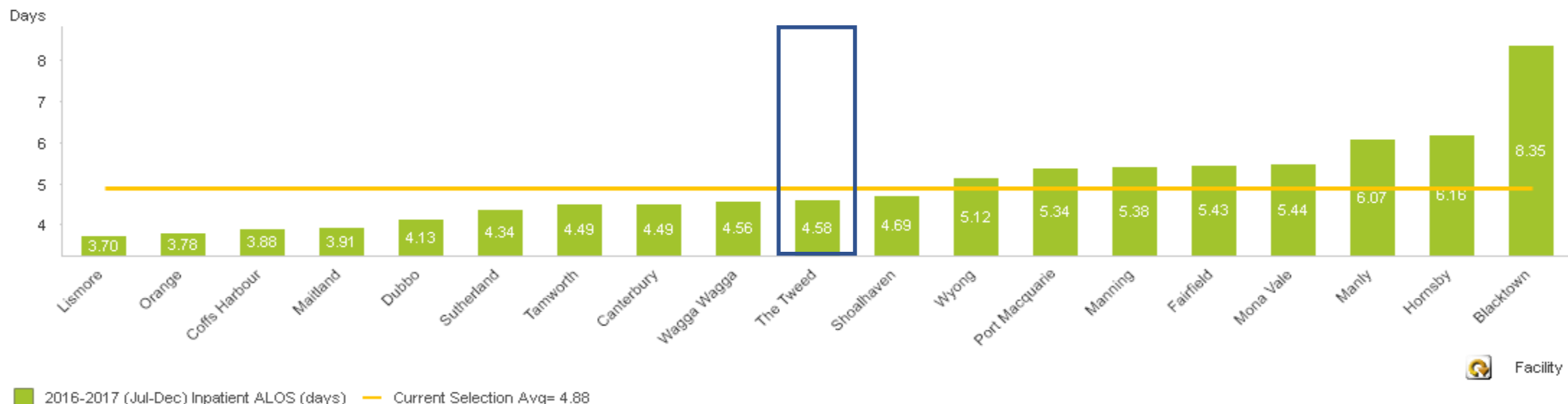risks associated with hospitalisation negatively impacts patient flow

 $ 135K

ineffective use of resources
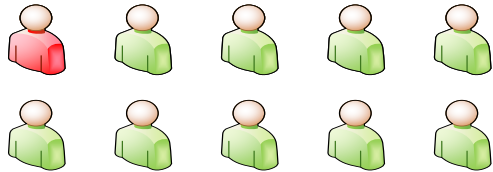
1 :10 patients represented to ED within 21 days

6 : 10 patients reported they were not clear about what to expect

Project Objectives:

To reduce ALOS for Elective TKR and THR to below peer average by June 2017

To reduce Ave Cost per NWAU for Elective TKR and THR to below peer average by June 2017

90% of patients will report that the information they received adequately prepared them for managing after discharge

Susan Dunn

Northern NSW - Totally Hip and Knee Project

ABM in NSW

- It's a journey and it's progressing

- Capability building is essential

- Results (not only financial returns) support the investment in the data, data quality and capability building initiatives

- Building the trust through an audit program

- See it in action and share actionable insights!