

# Can Activity Based Funding Data be used to benchmark and monitor changes in clinical practice?

ECI Leadership Forum  
13<sup>th</sup> November 2015  
Agency for Clinical Innovation

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# Introduction

- My project
  - Gained access to ED level ABF data
  - Figured out how to use the ABF portal
  - What can we look at?
    - Check compliance with clinical guidelines – asthma and CXR
    - Interdepartmental variability – CTKUB for renal colic, panscan for trauma
    - Pre and post implementation changes in clinical practice
  - Focussed on the ‘physical assessment of the mental health patient form’
    - Can ABF data be used to monitor the efficacy of this form?
    - Does this form reduce pathology and imaging costs in the ED?

# ABF Portal

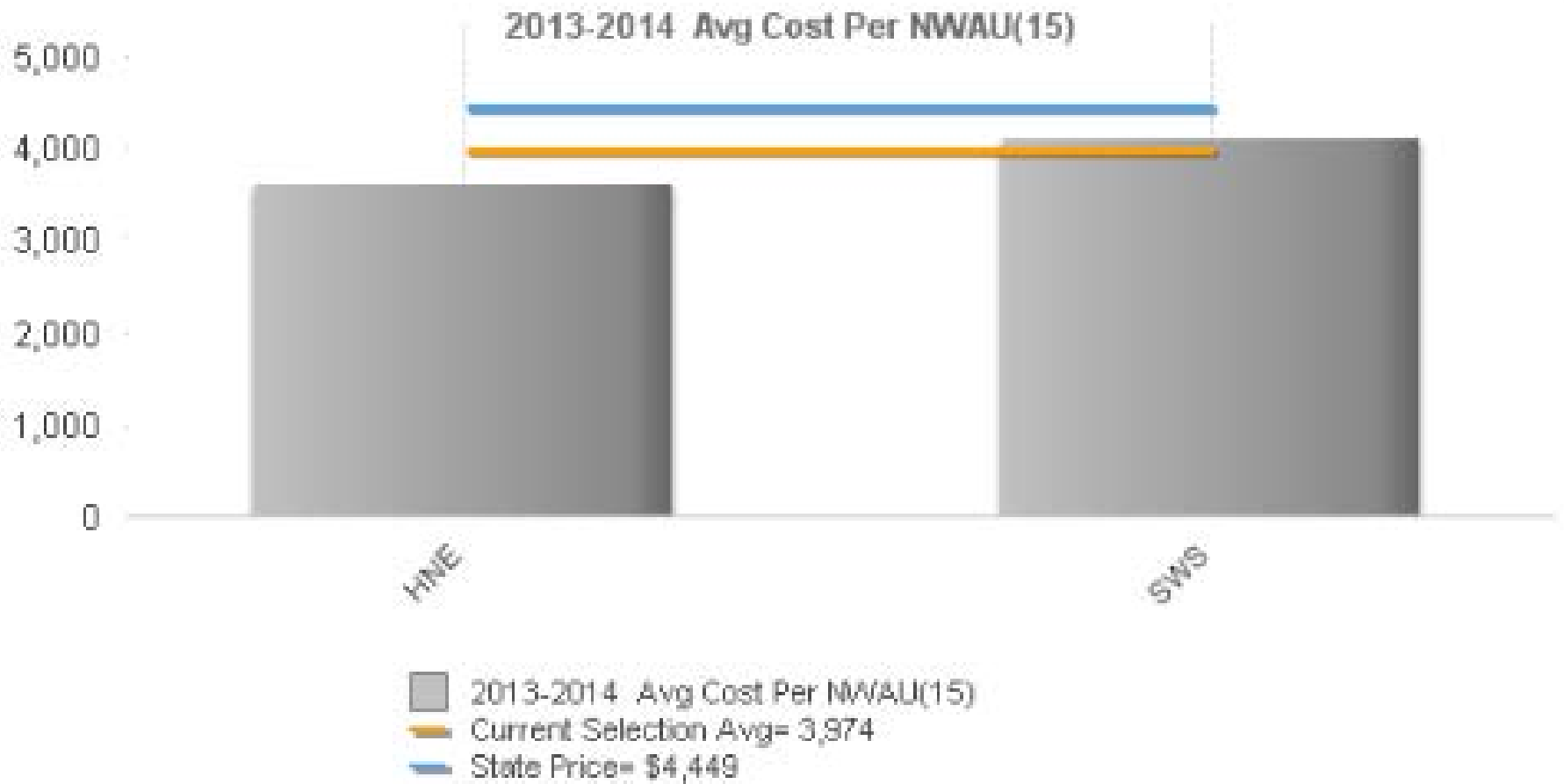


- 'Helps NSW health workers evaluate the efficiency and efficacy of local health service delivery'
- Discover connections between cost and models of care
  - Review effectiveness of services, improve care, lead to better patient outcomes

# ABF portal

- How to get access
  - The User Access Request Forms can be accessed from:  
[http://internal.health.nsw.gov.au/abf\\_taskforce/abm\\_portal/training.htm](http://internal.health.nsw.gov.au/abf_taskforce/abm_portal/training.htm)
- Information that is on there
  - Benchmarking
  - TopN
  - Clinical Variation
  - Frequent Patient
  - Patient journey

# Benchmarking between 2 LHD

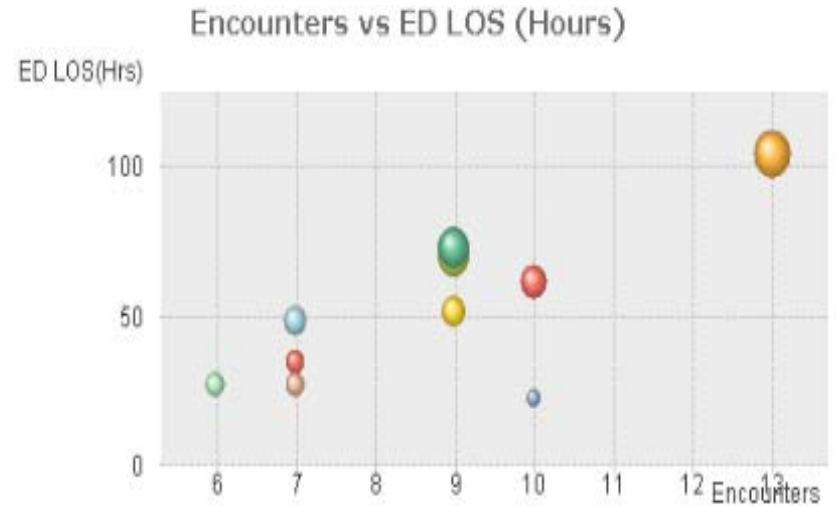


# Examples of what you can look at

Dimensions			Activity Metrics	Expense Metrics	Cost Metrics
<input type="checkbox"/> ABF Service Stream	<input type="checkbox"/> Encounter Number	<input type="checkbox"/> Patient	<input checked="" type="checkbox"/> ED ALOS	<input checked="" type="checkbox"/> Avg Cost / Enct	<input type="checkbox"/> Allied
<input type="checkbox"/> ABFStatus	<input type="checkbox"/> Ethnic Origin	<input type="checkbox"/> Payment Type	<input type="checkbox"/> Encounter	<input type="checkbox"/> Avg Cost / NWAU	<input type="checkbox"/> Critical Care
<input type="checkbox"/> Admission Category	<input type="checkbox"/> Facility	<input type="checkbox"/> PeerGroup	<input type="checkbox"/> ICU Hours	<input type="checkbox"/> Total Cost(\$)	<input type="checkbox"/> Exclude
<input type="checkbox"/> Admission Type	<input type="checkbox"/> Fin Program	<input type="checkbox"/> Principal Diagnosis	<input type="checkbox"/> Inpatient ALOS	<input type="checkbox"/> Total NWAU Cost(\$)	<input checked="" type="checkbox"/> Imag
<input type="checkbox"/> Age	<input type="checkbox"/> Gender	<input type="checkbox"/> Principal Procedure	<input type="checkbox"/> Total NWAU		<input checked="" type="checkbox"/> Med
<input type="checkbox"/> Age Group	<input type="checkbox"/> HiTH Flag	<input type="checkbox"/> SNAP Class			<input type="checkbox"/> Non Clinical
<input type="checkbox"/> Class	<input type="checkbox"/> Indigenous Status	<input type="checkbox"/> Specialty			<input checked="" type="checkbox"/> Nurse
<input type="checkbox"/> Classification	<input type="checkbox"/> LHD/SHN	<input type="checkbox"/> Start Date			<input type="checkbox"/> On Cost
<input checked="" type="checkbox"/> ED Diagnosis	<input type="checkbox"/> Mode of Arrival	<input type="checkbox"/> Tier 2			<input type="checkbox"/> OR
					<input checked="" type="checkbox"/> Path
					<input type="checkbox"/> Pharm
					<input type="checkbox"/> Pros
					<input type="checkbox"/> SPS
					<input type="checkbox"/> Ward&ED Supplies

- Age
- Diagnosis
- Mode arrival
- Length of stay in ED
- Imaging, pathology, allied health cost
- Medical/Nursing cost
- Facility
- Triage category
- Admitted/not admitted

# Individual patient



- $14 \times \$4200 = \$55000$
- Spent  $>100$  hrs in ED during 2013 = approx 8 hours/presentation

# Costing



- Each LHD and on occasion individual hospitals sort out their own costing
- Costing officers use
  - NWAU (national weighted activity unit) plus price weight adjustments for eg rural, indigenous, URGs (urgency related group) or UDGs (urgency disposition groups), pathology and imaging costing data from hospital costing database, staff salaries etc
  - Present 'feeder data' which is inputted into portal



# Physical assessment of the mental health patient background

- Currently there is variability in ED assessments of stable patients presenting with a primary mental health concern.
- Often patients undergo multiple investigations under the rouse that this provides 'medical clearance' when evidence suggests this is not indicated.



- ED processes that do not add value to patient care, or delay patients getting definitive treatment should be eliminated.
- Psychiatric patients who endure long waits in the ED can often experience an escalation of their psychiatric symptoms.
- MoH currently creating guidelines
- Some EDs have already implemented a ‘physical assessment of the mental health patient form’.

# Physical Assessment for Mental Health Patients Form



Patient's Details (or sticker)

Name	_____
Age	_____
DOB	_____
Address	_____

Brief description of presenting problem

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Physiological Observations

Heart rate	BP	Temp.	Resp. Rate	O2Sats	BSL

Meets low risk criteria (all required)

- Age 15-65 years
- No acute physical health problems (including trauma, ingestion or drug side-effects)
- No altered level of consciousness (GCS 15, no delirium)\*
- No evidence of physical cause for the acute presentation
- Not the first or significantly different psychiatric presentation

\*Alcohol ingestion does not preclude mental health assessment if patient meets low risk criteria

Patient may be referred to mental health service

Doesn't meet low risk criteria (write in notes)

- Urgent resuscitation/sedation alert senior ED, NUM, security if required
- Further medical review based on observations discuss with senior ED
- Investigations done based on clinical findings
- Chronic medical issue identified, note for psychiatric services to follow up

Transfer to Mental Health Services?  Yes  No

Referred to \_\_\_\_\_ for \_\_\_\_\_  N/A

Is the Mental Health Services aware of the patient?  Yes  No

ED Doctor's Name Printed

Signed

Date and Time

# Methods

- Observational, retrospective study using 2013-2014 data.
- Hospitals selected based on role of delineation and availability of data through the portal.
- Length of stay and costing data for nursing, medical, pathology and imaging for:
  - category 3-5 patients
  - aged between 15-64
  - psychiatric diagnosis (excluding eating disorders)
  - admitted and non-admitted were included
- Admitting officers at all sites were contacted and asked if their departments currently use a 'physical assessment of the mental health patient' form and for how long they have been using it.
- Ethics approval requested

# Hypothesis

- EDs who use the form have lower pathology and imaging costs than those who do not

# Quick report

## Quick Report

**Current Selections**

WIP  No

Class  No

- 085-Adm\_T3\_Psych illness, 090-
- Adm\_T4\_Psych illness
- 094-Adm\_T5\_Psych illness, 105-N-
- A\_T3\_Psych illness, 112-N-A\_T4\_Psych illness, 120-N-

**Dimensions**

All  Pricing Model  Acute  ED  Acute MH  Sub Acute MH  SNAP  Non Grouped to SNAP  NAP  Other

**Dimensions**

- ABF Service Stream
- ABFStatus
- Admission Category
- Admission Type
- Age
- Age Group
- Class
- Classification
- ED Diagnosis
- Encounter Number
- Ethnic Origin
- Facility
- Fin Program
- Gender
- HiTH Flag
- Indigenous Status
- LHD/SHN
- Mode of Arrival
- Patient
- Payment Type
- PeerGroup
- Principal Diagnosis
- Principal Procedure
- SNAP Class
- Specialty
- Start Date
- Tier 2

**Activity Metrics**

- ED ALOS
- Encounter
- ICU Hours
- Inpatient ALOS
- Total NWAU

**Expense Metrics**

- Avg Cost / Enct
- Avg Cost / NWAU
- Total Cost(\$)
- Total NWAU Cost(\$)

**Cost Metrics**

- Allied
- Critical Care
- Exclude
- Imag
- Med
- Non Clinical
- Nurse
- On Cost
- OR
- Path
- Pharm
- Pros
- SPS
- Ward&ED Supplies

**Activity Year**

ActivityYear

**Selections**

LHD/SHN

Facility

ABF Status

Fin Program

Classification

Class

Peer Group

Same Day Flag

Care Type

Principal Diagnosis

Principal Procedure

Specialty

Age Group

Payment Type

ED Diagnosis

**My Report in \$(K)**

ED Diagnosis	ED ALOS (Hrs)	Avg Cost / Enct	Med	Nurse	Imag	Path
	<b>6.44</b>	<b>\$669</b>	<b>181</b>	<b>177</b>	<b>21</b>	<b>25</b>
2073000-Delusions (finding)	4.70	\$545	137	134	27	30
6471008-Suicidal thoughts (finding)	7.31	\$720	200	195	12	21
7011001-Hallucinations (finding)	6.61	\$798	203	198	58	35
13601005-Paranoid personality disorder (disorder)	11.15	\$849	248	242	0	0
13746004-Bipolar disorder (disorder)	10.34	\$1,215	335	327	16	50
17226007-Adjustment disorder (disorder)	7.67	\$861	237	231	24	22
20010003-Borderline personality disorder (disorder)	10.91	\$1,149	331	323	0	17
21897009-Generalized anxiety disorder (disorder)	6.70	\$429	125	122	0	0
24199005-Feeling agitated (finding)	7.38	\$831	204	199	80	42
25501002-Social phobia (disorder)	6.92	\$527	154	150	0	0
31446002-Bipolar I disorder, most recent episode ...	2.03	\$130	38	37	0	0
33449004-Personality disorder (disorder)	6.02	\$586	167	162	0	16
35489007-Depressive disorder (disorder)	6.43	\$676	184	180	15	27
37057007-Psychophysiologic disorder (finding)	4.53	\$344	87	85	0	44
41501003-Threatening suicide (finding)	6.38	\$870	235	229	27	33
45150006-Auditory hallucinations (finding)	5.35	\$807	167	162	29	4
48206005-Mood disorder (disorder)	7.00	\$671	177	173	30	29
47372000-Adjustment disorder with anxious mood ...	2.65	\$170	50	48	0	0
47505003-Posttraumatic stress disorder (disorder)	7.54	\$845	209	203	81	39
48500005-Delusional disorder (disorder)	7.83	\$905	244	238	27	37
48894002-Anxiety (finding)	4.04	\$369	93	91	22	25
58214004-Schizophrenia (disorder)	7.12	\$788	219	213	10	25
58703003-Postpartum depression (disorder)	3.59	\$410	120	117	0	0
61372001-Aggressive behavior (finding)	9.27	\$1,049	262	255	93	45
64289007-Visual hallucinations (finding)	9.30	\$1,156	237	231	224	88
64905009-Paranoid schizophrenia (disorder)	8.27	\$901	257	251	4	17
67195008-Acute stress disorder (disorder)	4.77	\$412	108	105	3	38
68890003-Schizoaffective disorder (disorder)	7.94	\$879	249	243	0	26
69322001-Psychotic disorder (disorder)	9.64	\$1,165	309	301	54	44
73887007-Severe major depression with psychotic ...	9.25	\$1,056	286	279	0	70
74732009-Mental disorder (disorder)	5.93	\$563	158	154	7	13
78004001-Bulimia nervosa (disorder)	13.27	\$1,422	390	380	0	85
78667006-Dysthymia (disorder)	8.61	\$878	257	250	0	0
80583007-Severe anxiety (panic) (finding)	2.77	\$198	58	56	0	0
83746006-Chronic schizophrenia (disorder)	5.83	\$666	195	190	0	0

**Expand Selections**

Yes  No

# Results

- 10 EDs included for analysis.
- 3 EDs used a 'physical assessment of the mental health patient' form regularly (total patients = 4210), 7 did not (total patients = 6253).

Site	Encounter volume	ALOS	Av Cost	Med	Nursing	Imag	Path	Form	Role delineation
1	1346	6.9	690	198	200	0	21	y	5
2	553	5.9	1044	295	285	18	47	n	5
3	256	2.6	312	95	66	20	27	n	4
4	2166	6.3	652	178	174	17	23	y	6
5	452	2.6	323	61	105	11	13	n	5
6	1719	4.4	574	142	154	15	52	n	6
7	1412	4.3	595	162	144	12	54	n	6
8	689	3.8	545	187	136	8	14	y	5
9	795	4.5	760	235	193	14	26	n	5
10	1066	7.2	686	196	155	33	60	n	6

# Form vs no Form

	<b>Form</b>	<b>No form</b>
<b>ALOS</b>	6.1	4.8
<b>Total cost</b>	647	634
<b>Medical</b>	186	173
<b>Nursing</b>	176	161
<b>Imaging</b>	10	17
<b>Pathology</b>	21	46



# PECC unit onsite

- Departments who had a PECC unit (n=3) did not have a differing length of stay, 5 hours with vs 4.8 hours without.

# Discussion

- **Trend towards lower pathology and imaging costs incurred in EDs where form is used**
  - suggests use of a standardised form leads more efficient and standardised approach to test ordering.
- **Length of stay was not reduced**
  - therefore nursing and medical costs, which were closely linked to this variable, were not reduced whether the form was used or not
- **Departments with a PECC unit did not navigate patients through the ED any quicker than those who do not have such a facility**
  - suggests they are not being used appropriately.
  - The external review of PECC units in NSW conducted by the Ministry of Health in 2012 recommends that where there is no confounding medical condition, the patients should be fast tracked to the PECC for mental health assessment.

- The ABF data is useful and one can definitely observe trends.
- How costs are calculated is currently different in each Local Health District.
- The quality of data that is being fed into the portal needs to be monitored closely and taken into consideration when analysing data.

# Conclusion

- The use of a 'physical assessment of the mental health patient' form reduces inappropriate test ordering which follows evidence from multiple peer reviewed studies which suggests routine diagnostic testing is not required in stable patients who present with a primary mental health condition.
- ABF data can be used to monitor the pre and post implementation cost impact of using this form, as well as other similar changes in clinical practice. Trends within your own department and costing variability can be compared across multiple sites.

# Acknowledgments

- Sue Ieraci, Emergency Staff Specialist, Bankstown
- ABF team – X Cia, S Dunn

# References

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