



The building blocks of Activity Based Funding — High Quality Coding and Costing Information in Medical Imaging- the MICC Model.

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MICC – that's not reliable data...



Who are Medical Radiation Sciences

3 Disciplines of Medical Radiation Practice which include:

- Diagnostic Imaging (Radiology)
- Nuclear Medicine
- Radiation Therapy

We all have very big expensive machines that go ping

Medical Imaging- Radiology



Medical Imaging- Nuclear Medicine (NM)



Radiation Therapy (RT)



Status of Medical Imaging

Radiology and Nuclear Medicine departments are rapidly expanding their diagnostic services at a growth rate of

3 - 10% pa

Desired Change for Medical Radiation Sciences (MRS)

Accurate data and systematic data analysis enabling:

- Up to date and accurate costing of imaging
- Capacity to review models of care and unwarranted clinical variation (why?)
- Measures of efficiency
- Capacity for benchmarking

***All leading to
enhanced patient care***

MRS ADVISORY GROUP

Formed a ABF working party for:

1. Improve quality of data capture
2. Establish minimum data collection (RVU)
3. Standardise data collection processes
4. Agree on cost allocation methodology
5. Support benchmarking/peer comparison
6. Ensure fair and equitable funding

NSW GENERIC RIS Codesets

Problem: 5 different PACS-RIS Vendors and Service codesets in NSW (only 1 in WA!)

Solution: Design one NSW codeset

NM codesets 400+ reduced to 170
(Alan Scott)

Radiology codesets 1,400 lines

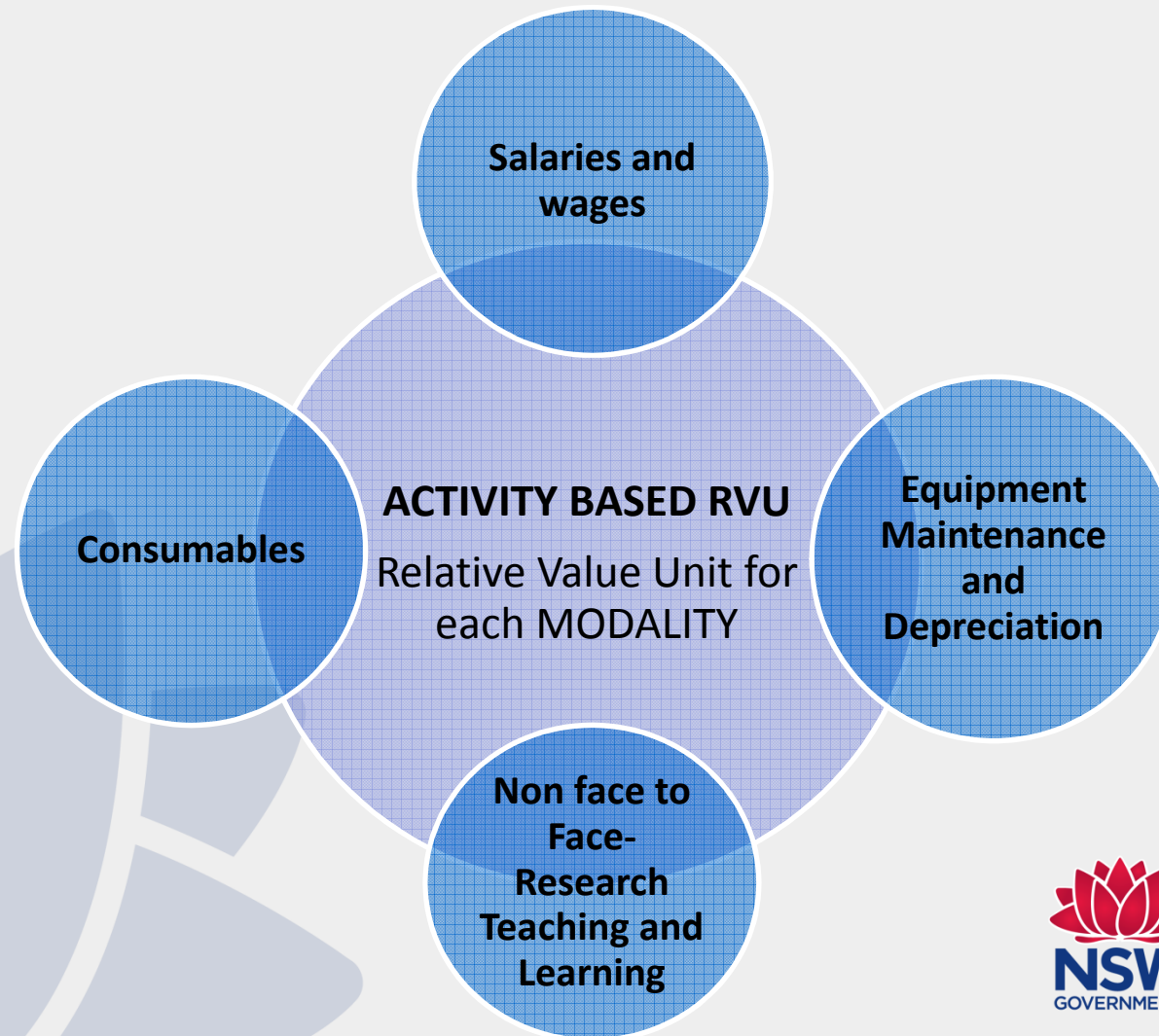
RT. State-Wide services –
Chief Radiation Therapist Group/
Lynette Cassapi - Liverpool Hospital



NSW GENERIC RIS Codesets

LHD Procedure Code	LHD Service Code (if applicable)	NSW Standard Service Code	Standard Service Name	MBS Item number	Modality Banding	RVU cost (\$)
MBRAIN	MRBANEURYS	MRBANEURYS	MRI Brain Aneurysm	63070	MR3	516
MBRAIN	MRBAVM	MRBAVM	MRI Brain AVM	63073	MR1	344

The RVU Developments – 4 bucket approach



RVU ALGORITHM

Salaries & Wages	Goods and Services	Equipment	Non Face to Face
<ul style="list-style-type: none"> • Wages all staff involved • Executive • Radiologist/ Rads/NM techs/ • PACs managers • Admin • Transport • Technical Assistants • Nurses • RPO/ physicist / Radiochemist services • 10% leave replacement 	<ul style="list-style-type: none"> • Goods and services consumables • Linen • Power 	<ul style="list-style-type: none"> • Imaging Equipment SLA, replacement and depreciation • PACs-RIS depreciation • Archiving costs (film storage?) 	<ul style="list-style-type: none"> • QA • Student Clinical coordination and assessment • CPD • Training & Education of staff • Procedure Development • Research

Inpatients vs outpatient costs

- Transport factor
- Patient complexity



BANDING COMPLEXITY

Increasing Complexity

	BAND 1 Least complex	BAND 2	BAND 3	BAND 4	BAND 5
MODALITY	Code and definition	Code and definition	Code and definition	Code and definition	Code and definition
General imaging inc Mobile Radiography (inc dental?)	GEN1 Simple , single region. E.g Single region: Finger,hand, femur Foreign film scan OPG Exam duration 15 mins approx	GEN2 Medium complexity At least 2 regions. Eg pelvis, hips and chest. Small Bowel Series Also all mobile radiography Exam duration approx 30 mins	GEN3 High complexity, multi-region, e.g -Multi-trauma , - critical triage category 1-2 or -Skeletal survey , or more than 3 regions or Exam duration approx. 1 hour		
Mammography	MAM1 Screening mammography approx 15-20 mins	MAM2 Mammography plus work-up imaging approx 30 -45 mins	MAM3 Interventional plus imaging. Eg Stereotactic breast biopsy approx 45 – 1hr	Band 3 increased costs due to biopsy needles, bushings, vacuum assisted kits tissue markers ect	

BANDING COMPLEXITY

	BAND 1 Least complex	BAND 2	BAND 3	BAND 4	BAND 5	BAND 6
MODALITY	Code and definition	Code and definition	Code and definition	Code and definition	Code and definition	
Ultrasound	US1 Low Complexity E.g. Renal scan approx. 30 mins or less	US2 Medium Complexity e.g. MSK, Vascular and Obs and Gynae Approx. 30 min-1 hour duration	US3 High Complexity Interventional E.g US guided biopsy Or greater than 1 hr			
CT	CT1 Low Complexity Non contrast, Single or 2 region, Non contrast scans e.g Brain NC Chest Abdo NC Several minutes	CT2 Low Complexity Contrast, Pre and post Contrast Scans, staging scans Single region Eg CT leg angio CT Messenteric Angio Approx. 15 -30 mins	CT3 Medium Complexity Non contrast Multi-region scans e.g. CT Neck, CT Chest , CT abdo Ct Pulmonary Angio Exam duration approx 30 – 1hr	CT4 Medium Complexity Contrast Urgent , contrast 2 region scan E.g. Multi phase exams, CT abdo3 phase, Exam duration approx 30 – 2hr	CT5 High Complexity, Multi-region Contrast Interventional (CZ) e.g Critical Triage exams, CT -3D reformats -Coronary Ct CT with GA 1hr/2hr +	CT6 CT RADIOFREQUENCY ABLATION (RFA) Several hours (cost over \$10K)

RVU Worksheet – FTE Split

Modality	12-13 Activity	Activity % split	Radiographers	SMO	JMO	VMO
BMD	-	0.00%	0.00	0.00	0.00	0.00
Computed Tomography	6,268	17.57%	2.30	0.00	0.00	0.60
Digital Angiography	-	0.00%	0.00	0.00	0.00	0.00
Magnetic Resonance Imaging	-	0.00%	0.00	0.00	0.00	0.00
Mammography	-	0.00%	0.00	0.00	0.00	0.00
Nuclear Medicine	-	0.00%	0.00	0.00	0.00	0.00
Screening (General Fluoroscopy)	-	0.00%	0.00	0.00	0.00	0.00
Ultrasound	4,870	13.65%	3.00	0.00	0.00	0.25
INR	-	0.00%	0.00	0.00	0.00	0.00
Operating Room	945	2.65%	0.30	0.00	0.00	0.05
General Imaging(X-Ray, MOB)	23,597	66.14%	4.80	0.00	0.00	0.60
PET	-	0.00%	0.00	0.00	0.00	0.00
Total	35,680	100.00%	10.40	0.00	0.00	1.50

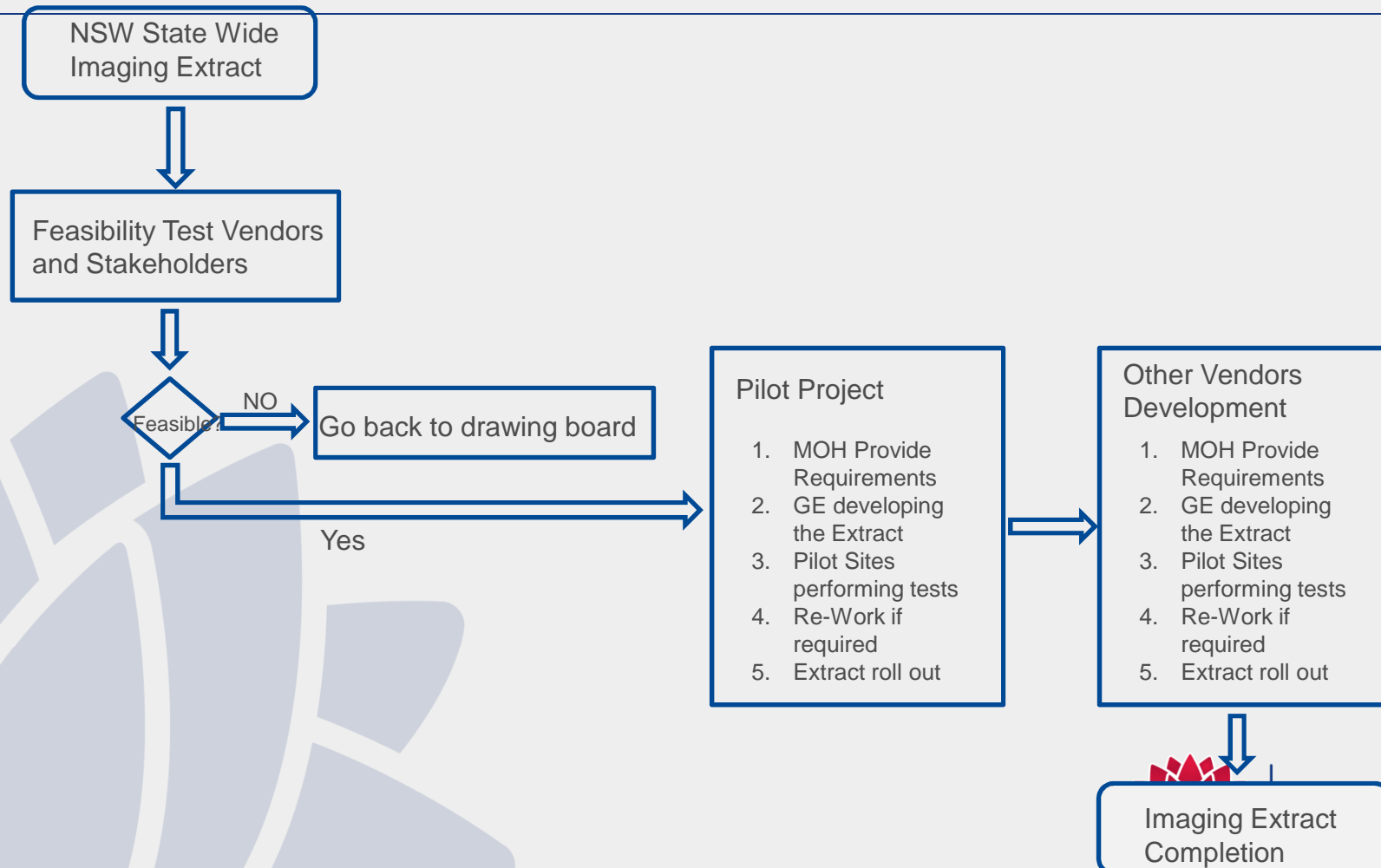
RVU Worksheet – Banding Split

Ultrasound						
Ultrasound Band	Activity by band	Resource Split	Staff 13-14 Budget	Non Staff 13-14 Budget	Total Costs	RVU by band
Band 1	2,435	30%	\$ 207,142	\$ 44,416	\$ 251,558	103
Band 2	1,948	30%	\$ 207,142	\$ 44,416	\$ 251,558	129
Band 3	487	40%	\$ 276,190	\$ 59,221	\$ 335,411	689
Total	4,870	100%	\$ 690,474	\$ 148,052	\$ 838,526	
Source	4,870		\$ 690,474	\$ 148,052	\$ 838,526	
Check	TRUE	TRUE	TRUE	TRUE	TRUE	

RVU Worksheet – Total RVU's

Total RVU's						
Modality	12-13 Activity	Activity % split	Salaries Component of RVU	Goods and Services Component of RVU	Total RVU	RVU x activity
BMD	-	0.00%	-	-	-	\$ -
Computed Tomography	6,268	17.57%	133.96	34.49	168.46	\$ 1,055,880
Digital Angiography	-	0.00%	-	-	-	\$ -
Magnetic Resonance Imaging	-	0.00%	-	-	-	\$ -
Mammography	-	0.00%	-	-	-	\$ -
Nuclear Medicine	-	0.00%	-	-	-	\$ -
Screening (General Fluoroscopy)	-	0.00%	-	-	-	\$ -
Ultrasound	4,870	13.65%	141.78	30.40	172.18	\$ 838,526
INR	-	0.00%	-	-	-	\$ -
Operating Room	945	2.65%	85.07	25.01	110.08	\$ 104,024
General Imaging(X-Ray, MOB)	23,597	66.14%	56.03	10.68	66.71	\$ 1,574,133
PET	-	0.00%	-	-	-	\$ -
Total	35,680	100.00%	416.84	100.59	517.42	\$ 3,572,563

Medical imaging data extract process



NSW Standard RIS Extract example

RIS extract data fields	Description	Example data
Facility ID	Performing Hospital ID	B218
MRN	Patient local ID	123456789
Order Date/Time	eMR order date and time	1/01/2014
Requesting Doctor	Doctor who placed the order	Dr. Lam
Point of Service	Order originating department	ED
Procedure Codes (LHD)	Original LHD procedure code	CTBBOS
RIS Accession Number	Accession number in RIS	999999
eMR Episode Number	Examination number in eMR	888888
Financial class	Financial class of patient	DVA
Study Date/Time	Study performed date	1/01/2014
Report Date/Time	Study report date	2/01/2014
NSW Standard Service Code	NSW Generic RIS Code	CTBRAINBOS
MBS Item number	MBS Item Number	56030
Modality Banding	Modality and Banding for this procedure	CT2
RVU	Local RVU for this	210.25

Road Tests

- 2 large hospitals (metro)
- 2 medium hospitals (metro and rural)
- 2 small hospitals (rural)



Analysis via ABM Portal

The ABM Portal will enable investigation of the Imaging Bucket to investigate variation between sites/LHDs (e.g. cost or volume or both)



Other Outcome...

- The MICC model provides an opportunity for NSW Health to conduct state-wide mapping of MBS to the modality RVUs and inform AR-DRGs/URGs/OP costs.

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