Health
Western Sydney
Local Health District

Brief for the Executive Director of Medical Services
Western Sydney Local Health District

Approval

Westmead Hospital's response to the Royal Australian and New Zealand College of Radiologists (RANZCR) regarding accreditation

Topic	RANZCR sent an email to the A/EDO, A/EDMS, Radiology Head of Department and the Radiology Directors of Training, requesting and updated progress report and risk management plan.
Analysis	RANZCR undertook an accreditation site visit in October 2019. In September 2020, a response was provided by WSLHD providing evidence requested by RANZCR. RANZCR have requested an updated progress report, with supporting evidence, and a risk management plan. These have been completed collaboratively with the A/EMDS, Westmead Hospital Chief Medical Advisor, Radiology Head of Department and Radiology Directors of Training.

Recommendation

1. **Approve** the updated progress report and risk management plan to be provided to RANZCR.

A/Executive Director of Medical Services' signature		**Date**	6/11/2020

Key reasons

During the accreditation site visit by RANZCR in October 2019, a number of issues were identified that required action.

Information was provided, including a progress report and supportive evidence, to RANZCR in September 2020.

A further updated progress report has been requested by RANZCR via email on 22 October 2020.

There are concerns from RANZCR regarding Radiologist staffing and workload, and subsequent supervision and protected teaching time for RANZCR Trainees.

The attached reports have been completed collaboratively with the A/EMDS, Westmead Hospital Chief Medical Advisor, Radiology Head of Department and Radiology Directors of Training.

Failure to provide the attached documentation may lead to loss of accreditation for the Radiology Department.

Repeat your title from the front page

Consultation

Contact	Position	Phone number
Dr George McIvor	Clinical Director, Radiology Westmead Hospital	[redacted]
Dr Jane Li	Co-Director of Training, Radiology, Westmead Hospital	

Contact and approval

Contact	Position	Phone number
Dr Amy Manos	Medical Administration (RACMA) Registrar	[redacted]

Name	Position	Date
Rebecca Tyson	General Manager, Westmead Hospital	06/11/2020
A/Prof Roslyn Crampton	Chief Medical Advisor	06/11/2020

Attachments

Tab	Title
A	Letter of Response to RANZCR re Westmead Accreditation
B	Westmead Hospital Radiology Department Risk Management Plan
C	Westmead Hospital Progress Report
D	2.2.7 Evidence – Breakdown of Diagnostic Reporting hours for Interventional Radiologists
E	2.2.6 Evidence – Current Backlog of Unreported Cases
F	2.2.3 Evidence – A: Trainee Teaching Schedule
G	2.2.3 Evidence – B: Clinical Supervisor Position Description
H	2.2.4 Evidence – DoT protected time
I	2.2.5 Evidence – A: Trainee Roster
J	2.2.5 Evidence – B: Unrostered Overtime Claims
K	1.6.1 Evidence – Computer access in Trainee space
L	1.6.2 Evidence – Administration Support for Advanced Radiology Trainees
M	1.6.3 Evidence – Model of Care for CASB
N	3.1.4, 3.1.5, 3.1.6 Evidence – Trainee training requirements
O	3.3.1 Evidence – Email to clinical supervisors

NSW GOVERNMENT Health
Western Sydney
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WSLHD Ref: WSBRIEF20/3637-1

Bettina Brooke
Senior Project Officer, Quality Assurance and Evaluation
The Royal Australian and New Zealand College of Radiologists
Level 9, 51 Druitt Street, Sydney
2000 NSW

Via email: accreditation@ranzcr.edu.au

Dear Ms Brooke

I write in response to your correspondence of 22nd October 2020 requesting that Westmead Hospital Executive and Westmead Hospital Radiology Department provide an updated progress report to the Royal Australian and New Zealand College of Radiologists (RANZCR) for accreditation. This follows an initial accreditation site visit conducted on 25th October 2019.

Western Sydney Local Health District (WSLHD) would like to assure you that there is an ongoing commitment to ensuring the improvement of training and education of all RANZCR Trainees at Westmead Hospital.

An updated progress report is attached, with supporting evidence as requested. A Risk Management Plan has also been developed and is attached for your review.

WSLHD again would like to highlight the ongoing commitment to ensuring safe working hours for all staff, and, doctors in training. WSLHD would be please to discuss any specific matters further with you and is committed to continuous improvement of education experiences within Westmead Hospital.

If you wish to obtain further information, please contact Professor Peter Hockey, Acting Executive Director of Medical Services via email WSLHD-EDMS@health.nsw.gov.au.

Yours sincerely

Rebecca Tyson
General Manager, Westmead and Auburn Hospitals

Date: 12·11·20

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Westmead Hospital Radiology Department Risk Management Plan

A Risk Register has been developed to identify, monitor and manage the risks and related issues in the Radiology Department at Westmead Hospital those related to accreditation as a training site with the Royal Australian and New Zealand College of Radiologists (RANZCR). Risks are rated using the table below, obtained from NSW Health Enterprise-Wide Risk Management Framework.

NSW Health Risk Matrix

Risk rating	Action required
Red = Extreme (A – E)	**Escalate to CE or Head of Health service or Secretary, MoH** A detailed action plan must be implemented to reduce risk rating with at least monthly monitoring and reporting.
Orange = High (F – K)	**Escalate to Senior Management** A detailed action plan must be implemented to reduce risk rating.
Yellow = Medium (L – T)	**Specify Management Accountability and Responsibility** Monitor trends and put in place improvement plans.
Green = Low (U – Y)	**Manage by routine procedures** Monitor trends.

NSW HEALTH RISK CATEGORIES	CONSEQUENCE EXAMPLES				
	Catastrophic	Major	Moderate	Minor	Minimal
Clinical Care & Patient Safety	Unexpected multiple patient deaths unrelated to the natural course of the illness.	Unexpected patient death or permanent loss/reduction of bodily function unrelated to the natural course of the illness.	Unexpected temporary reduction of patient's bodily function unrelated to the natural course of the illness which differs from the expected outcome.	Patient's care level has increased unrelated to the natural course of the illness.	First Aid provided to patient unrelated to the natural course of the illness.
Health of the Population	An increase in the prevalence of known conditions contributing to chronic diseases across the state-wide population health KPI categories currently measured by NSW Health and or an increase of more than 10% in one or more category.	Failure to materially reduce the prevalence of known conditions contributing to chronic disease across the majority of the state-wide population health KPI categories measured by NSW Health and or an increase of more than 5% up to 10% in one or more category.	Failure to materially reduce the prevalence of more than one of the known conditions contributing to chronic disease from the state-wide population KPI categories measured by NSW Health and or an increase of more than 2% and up to 5% in one or more category.	Failure to reduce the prevalence of one of the known conditions contributing to chronic disease from the state-wide population health KPI categories measured by NSW Health or an increase of up to 2% in one or more category.	A preventative Health program has not demonstrably met planned objectives but the prevalence of known condition is continuing to decrease in line with KPI targets.
Workforce	Unplanned cessation of a critical state-wide program or service or multiple programs and services.	Unplanned cessation of a service or program availability within a Service Area with possible flow on to other locations.	Unplanned restrictions to services and programs in multiple locations or a whole hospital or community service.	Unplanned service delivery or program delays localised to department or community service.	Minimal effect on service delivery.
Communication & Information / Facilities & Assets / Security	Cessation of services due to loss, damage or unauthorised access to property, assets, records and information.	Prolonged service disruption or suspension of services due to the loss, damage or unauthorised access to property, assets, records and information.	Temporary suspension of services due to the loss, damage or unauthorised access to property, assets, records and information.	Localised disruption to services. Minor loss, damage or unauthorised access to property, assets, records and information.	Minimal effect on services. No loss or damage to property, assets, records or information.
Emergency Management	State wide system dysfunction resulting in total shutdown of service delivery or operations.	Services compromised as service providers are unable to provide effective support and other areas of NSW Health are known to be affected.	Disruption of a number of services within a location with possible flow on to other locations in the area.	Some disruption within a location but manageable by altering operational routine.	No interruption to services.
Legal	Legal judgement, claim, non compliance with legislation resulting in indeterminate or prolonged suspension of service delivery.	Legal judgement, claim, non compliance with legislation resulting in medium term suspension of service delivery.	Legal judgement, claim, non-compliance with legislation resulting in medium term but temporary suspension to services.	Legal judgement, claim, non-compliance with legislation resulting in short term disruption to services.	Legal judgement, claim or legislative change but no impact on service delivery.
Finance	More than 5% over budget/NOT recoverable within the current or following financial year. Unable to pay staff or finance critical services.	Up to 5% over budget or a material overrun NOT recoverable within the current financial year. Unable to pay creditors within MOH benchmark.	Up to 5% over budget but recoverable within current financial year.	Up to 1% temporarily over budget and recoverable within current financial year.	Less than 1% over budget. Temporary loss of or unplanned expenditure related to individual program or project but no net impact on budget.
Work Health & Safety	Multiple deaths or life threatening injuries or illness to non-patients.	Death or life threatening injury or illness causing hospitalisation of non-patients.	Serious harm, injury or illness causing hospitalisation or multiple medical treatment cases for non-patients.	Minor harm, injury or illness to a non-patient where treatment or First Aid is required.	Harm, injury or illness not requiring immediate medical treatment.
Environmental	Permanent effect on the environment or is unlikely to recover.	**Long term effect on the environment. The environment will only recover through external assistance / intervention (EPA)**	Short term effect on the environment. Environment likely to make a full recovery through local planning and response measures.	Minor effect on the environment. Environment to make a full recovery by routine procedures.	No lasting effect on the environment.
Leadership and Management	Failure to meet critical priority KPI's included in the service's performance agreement. Sustained adverse national publicity. Significant loss of public confidence, loss of reputation and/or media interest across NSW in services.	Failure to meet a significant number of priority KPI's included in the service's performance agreement. Sustained adverse publicity at a state-wide level leading to the requirement for external intervention. Systemic and sustained loss of public support/opinion across a service.	Failure to meet a number of priority KPI's included in the services' performance agreement. Increasing and broadening adverse publicity at a local level, loss of consumer confidence, escalating patient/consumer complaints. Extended loss of public support/opinion for a Facility/Service.	Failure to meet one or more of the KPI's (excluding priority KPI's) included in the service's performance agreement. Periodic loss of public support.	Minimal impact on local operations, local management review and occasional adverse local publicity.
Community Expectations					

Probability	Frequency	LIKELIHOOD	CONSEQUENCE RATINGS				
			Catastrophic	Major	Moderate	Minor	Minimal
> 95% to 100%	Several times a week	Almost certain	A	D	J	P	S
> 70% to 95 %	Monthly or several times a year	Likely	B	E	K	Q	T
> 30% to 70%	Once every 1 -2 years	Possible	C	H	M	R	W
> 5% to 30%	Once every 2 – 5 years	Unlikely	F	I	N	U	X
< 5%	Greater than once every 5 years	Rare	G	L	O	V	Y

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Risk Area	Risk / Issue Description	Likelihood	Consequence	Risk Rating	Mitigation Strategy
Supervision, Training and Teaching	Current Radiologist FTE is insufficient to provide satisfactory trainee supervision and training.	**Almost Certain**	**Moderate**	**HIGH**	• Approval for recruitment of additional 4.0 FTE Radiologists. Unsuccessful recruitment thus far. • Current vacancy is 6.0 FTE Radiologists. 2.0 FTE (currently on long term leave) expected to recommence Feb 2021. 1.0 FTE has expressed intention to return in 2021. • Brief in progress to recruit VMO's to backfill current vacancies (related to resignations, extended sick and long service leave).
Supervision, Training and Teaching	Current workload and staffing issues resulting in lack of protected teaching time expected by RANZCR.	**Likely**	**Moderate**	**HIGH**	• Commitment from Westmead Hospital to ensure protected trainee teaching time is a priority. • Minimum 1 x tutorial/day (as per Westmead Registrar Tutorial Timetable) • Additional tutorials for Part 2 exam candidates (including specialty areas) • Teaching and training requirements are included in all Radiologist position descriptions • With addition of SRMO's (see below), 4 hours of protected time will be included in all RANZCR Trainee rosters • Appoint 0.6 FTE Research and Education Support Officer for Radiology in 2021

Supervision, Training and Teaching	Inability to attract Radiologists. **National problem.	**Likely**	**Moderate**	**HIGH**	• Continue recruitment
Trainee Well-being	Current working environment leading to a negative impact on the wellbeing of trainees	**Likely**	**Moderate**	**HIGH**	• In line with the NSW JMO Wellbeing and Support Plan 2017, Westmead Hospital will continue to improve the ways we work to better support the wellbeing and health of our trainees. • Ensure regular feedback opportunities through different avenues (including WSLHD-wide "JMO Think Tank") from trainees to shape the teaching and training program at a local level. • Regular reassurance to trainees from WMH Executive and DoT that their opinions are valued. Provide encouragement for them to provide feedback.
Trainee Well-being	Workload expectations for trainees. Potentially undertaking a greater load of reporting compared to workload expectations.	**Almost Certain**	**Moderate**	**HIGH**	• Commitment from Westmead Hospital to encourage trainees to leave work at a reasonable time and discourage unnecessary overtime. • Use RANZCR recommendations as a guide to regulate work practices as a triage system, and to prioritise experiential work requirements. • Brief approved (currently advertised) to recruit SRMO's to reduce non-reporting duties of RANZCR Trainees. • Recruitment to current Radiologist vacancies will likely reduce workload for Trainees.

Trainee Well-being	Current workload requirements for trainees may be outside of the AMA Safe Working Hours and Public Hospital Medical Officers (State) Award 2018.	**Possible**	**Moderate**	**MEDIUM**	• Commitment from Westmead Hospital to encourage trainees to leave work at a reasonable time and discourage unnecessary overtime. • Ensure Trainees are supported to record and submit overtime activity via UROC. Monitored at a District level and breaches of Safe Working hours followed up by Chief Medical Advisor. • Support ongoing checks around roster development for trainees to ensure achievement of reasonable shift coverage.
Supervision, Training and Teaching	Capacity for the Director of Training (DoT) to undertake the requirements of the role, given workload.	**Possible**	**Moderate**	**MEDIUM**	• 2 x Co-DoT currently. • Allocation of five (5) hours per week of Protected Time for each DoT, on days where there are >5 Radiologists rostered. • If <5 Radiologists onsite (due to unexpected leave etc), then DoT will be reallocated to reporting, however, will remain available to Trainees for education and support on an Ad Hoc basis.
Trainee Wellbeing	Lack of access to appropriate equipment (eg; computer) in training spaces	**Possible**	**Minor**	**MEDIUM**	• Dedicated computer placed in the Trainee space • Commitment from Westmead Hospital to ensure replacement of damaged equipment
Trainee Wellbeing	Not utilising of the Performance and Progression (Clinical	**Rare**	**Moderate**	**MEDIUM**	• Three (x3) trainees currently identified as requiring additional support and receiving additional supervision and support.

Supervision, Training and Teaching	Radiology) Policy, the Remediation in Training (Clinical Radiology) and the Withdrawal from Training (Clinical Radiology) Policy to identify trainees requiring additional support.				• Ensure use of the appropriate policies, to allow for early identification and intervention for Trainees who may require additional support.
Supervision, Training and Teaching	Lack of appropriate Patient Safety Training, Report Writing Module and Non-Medical Expert Role Training, for Trainees.	**Rare**	**Moderate**	**MEDIUM**	• DoT's to ensure all Trainees complete appropriate training on commencement, and ongoing training as required. DoT's to monitor and provide additional training as required.
Consultant Wellbeing	Current working environment leading to a negative impact on the wellbeing of Radiologists.	**Likely**	**Moderate**	**HIGH**	• Regular meetings with the WMH Executive to ensure feedback is provided about concerns and/or recommendations for improvement • Regular meetings with Head of Department and Chief Medical Advisor • Recruitment to current vacancies to reduce workload and increase opportunity for research.
Supervision, Training and Teaching	Current Radiologist staffing insufficient for expanded clinical Radiology Department, with the opening of the CASB	**Almost Certain**	**Moderate**	**HIGH**	• Request for additional Radiologist FTE being progressed • CASB opening will be staged. Only ED Radiology service will be opened initially.

Trainee Well-being Radiologist Workload Supervision of Trainees	Inability to meet Accreditation expectations and recommendations in 2020/2021, resulting in loss of Accreditation	**Possible**	**Major**	**HIGH**	• If loss of accreditation occurs, Westmead Hospital will work with RANZCR to place trainees in other locations to ensure their training is completed.

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Westmead Hospital Accreditation Progress Report

Progress Report Debrief Meeting	
Attendees:	

Identified Criterion	Recommendation	Action Required	Accountable Officer	Responsible Officer	Progress Update	Supporting Evidence	RANZCR Accreditation Review	Westmead Hospital Executive Comment
1.1.1	Westmead Hospital to address the FTE resources and provide evidence of recruitment of an additional two FTE consultants to address the high clinical workload to enable better access to education, supervision and improve wellbeing of trainees and consultants.	The WSLHD will work towards employing Radiologist Back-Fill positions of current vacancies related to resignations, extended sick leave and long service leave The back-fill Radiologist positions will be a combination of staff specialist and VMO positions. All Radiologists (current and recruitment) will be required to be physically present on-site to provide training for Advanced Radiology Trainees	General Manager, Westmead Hospital	Head of Department of Radiology, Westmead Hospital	WSLHD has approved the recruitment of an 4FTE staff specialists in Radiology but has been to date unsuccessful in recruiting to these positions. Additional complexity is added by payment arrangements outside of award conditions no longer being supported by NSW Health. Alternate approaches (eg VMO recruitment) are being investigated.	WSLHD has approved the recruitment of an 4FTE staff specialists in Radiology but has been to date unsuccessful in recruiting to these positions. Additional complexity is added by payment arrangements outside of award conditions no longer being supported by NSW Health. Alternate approaches (eg VMO recruitment) are being investigated.	**Criterion Not Met** • Documentary Evidence to be supplied.	• Approval for recruitment of additional 4.0 FTE Radiologists. Unsuccessful recruitment thus far. • Current vacancy is 6.0 FTE Radiologists. 2.0 FTE (currently on long term leave) expected to recommence Feb 2021. 1.0 FTE has expressed intention to return in 2021. • Brief in progress to recruit VMO's to backfill current vacancies (related to resignations, extended sick and long service leave).
2.2.7	Westmead Hospital to provide an updated consultant listing indicating Interventional Radiologist FTE commitment.	Provide an updated consultant listing indicating Interventional Radiologist FTE commitment.	Head of Department of Radiology, Westmead Hospital	Head of Department of Radiology, Westmead Hospital	Bruce Dennien – long term leave Rafid Al-Asady – present 0.7 Luke Baker – present 0.7 Jules Harvey – present 1.0 Jane Li – present 0.7 Alan O'Grady – long term leave Simon So – present 0.7 Philip Vladica – present 0.7 Noel Young – present 0.7	N/A	**Criterion Met** **However:** • **Please provide a breakdown of diagnostic reporting hours against the FTE provided**	• Please see attached evidence
3.2.1	Westmead Hospital to provide evidence of onsite tutorials in hours.	Deliver tutorials in hours	DoTs	DoTs	A revised roster has been designed together with the DoT's – Dr Jane Li and Dr Mohamed Nasreddine and the Senior Registrar Dr Ismail Goolam for onsite tutorials	Appendix 1	**Criterion Met**	
2.2.1	Westmead Hospital to provide evidence of participation within the HETI program.	Provide evidence of participation within the HETI program	ESO	ESO	Please see below the number of Westmead trainees who attended the HETI Part 2 days during 2019. As advised by HETI not all attendance sheets were forwarded to HETI for their records. Available documentary evidence is attached indicating the Westmead trainees who signed on that day.	N/A	**Criterion Met**	

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Identified Criterion	Recommendation	Action Required	Accountable Officer	Responsible Officer	Progress Update	Supporting Evidence	RANZCR Accreditation Review	Westmead Hospital Executive Comment
					• 23/7/19 Concord Hospital – 3 Westmead trainees in attendance • 26/7/19 Gosford Hospital – 3 Westmead trainees in attendance • 29/7/19 Nepean Hospital – 3 Westmead trainees in attendance • 16/9/19 RPA Hospital – 4 Westmead trainees in attendance • 24/9/19 Liverpool Hospital – 3 Westmead trainees in attendance • 14/10/19 St George Hospital – 4 Westmead trainees in attendance • 19/11/19 Westmead Hospital – 4 Westmead trainees in attendance • 26/11/19 St Vincent's Hospital – 3 Westmead trainees in attendance Westmead DoT's and consultants also participated in the Part 2 HETI days as demonstrated by the Westmead programmes attached from 2019			
2.2.6	Westmead Hospital to address backlog of unreported cases to ensure patient safety.	Address backlog of unreported cases to ensure patient safety.	General Manager, Westmead Hospital	Head of Department of Radiology, Westmead Hospital	With the decreased activity resulting from the COVID-19 pandemic, back-log reporting has been reduced almost to almost zero. As a consequence, the real-time checking and authorisation of Radiology Registrar generated Provisional Reports averages < 2 hrs for ED and < 6 – 8 hrs for In-Patients during normal hours, with overnight work caught up early in the morning. As Hospital services returns to normal, referral volumes have increased substantially. This will be addressed as per Item 1.	Addressed as per item #1	**Criterion Met** **However:** • Documentary Evidence to be supplied of current backlog of unreported caes.	• Please see attached evidence
1.6.1	Westmead Hospital to provide dedicated access to A/V facilities within the department to enable trainees to access a Network formal education program.	Provide dedicated access to A/V facilities within the department	Head of Department of Radiology, Westmead Hospital	Head of Department of Radiology, Westmead Hospital	A/V Facilities updated in Seminar Rooms 1 & 2. Seminar Room 2 awaiting audio hardware to be installed. As an interim measure, a speaker phone is available in the room.	N/A	**Criterion Met**	

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Identified Criterion	Recommendation	Action Required	Accountable Officer	Responsible Officer	Progress Update	Supporting Evidence	RANZCR Accreditation Review	Westmead Hospital Executive Comment
2.2.3	Westmead Hospital to demonstrate allocated protected time for trainees.	Demonstrate allocated protected time for trainees.	Head of Department	DoT	The allocation of Protected Time for DoT's and Advanced Trainees is unachievable in the current climate where there is a shortage of Staff Specialist / VMO Radiologists. Once the new consultants are employed, this will be a priority. WSLHD recognises the importance of meeting trainee needs defined by RANZCR and is committed to working with the Department to achieve the provision of Protected Time within the next 6 months.	Refer Action Item #1 Appendix 2	**Criterion Not Met** • Documentary Evidence to be supplied.	• Commitment from Westmead Hospital to ensure protected trainee teaching time is a priority. • Minimum 1 x tutorial/day (as per Westmead Registrar Tutorial Timetable) • Additional tutorials for Part 2 exam candidates (including specialty areas) • Teaching and training requirements are included in all Radiologist position descriptions • With addition of SRMO's (see below), 4 hours of protected time will be included in all RANZCR Trainee rosters • Appoint 0.6 FTE Research and Education Support Officer for Radiology in 2021
2.2.4	Westmead Hospital to demonstrate allocated protected time for the DoT's	Demonstrate allocated protected time for the DoT's	Head of Department of Radiology, Westmead Hospital	DoT	The Department is endeavouring to ensure that the DoT's have allocated protected time (refer Appendix 8). This is acknowledged as challenging to maintain at current staffing levels. This is another area of priority when additional recruitment is completed.	Refer Action Item #1	**Criterion Not Met** • Documentary Evidence to be supplied.	• 2 x Co-DoT currently. • Allocation of five (5) hours per week of Protected Time for each DoT, on days where there are >5 Radiologists rostered. • If <5 Radiologists onsite (due to unexpected leave etc), then DoT will be reallocated to reporting, however, will remain available to Trainees for education and support on an Ad Hoc basis.
1.1.4	Westmead Hospital to provide evidence of the DoT's continued active participation within the Network Committee.	Provide evidence of the DoT's continued active participation within the Network Committee.	DoTs	DoTs	A summary of Director of Training participation in Network Committees is below: • NGC Meeting 11/3/19 –Dr Jane Li in attendance via teleconference • NGC Meeting held 3/6/19 – Dr Jane Li & Dr Susan Grayson • NGC Meeting 21/8/19 –Dr Susan Grayson in attendance via teleconference • NGC Meeting 21/11/19 –Dr Jane Li in attendance via teleconference	N/A	**Criterion Met**	

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Identified Criterion	Recommendation	Action Required	Accountable Officer	Responsible Officer	Progress Update	Supporting Evidence	RANZCR Accreditation Review	Westmead Hospital Executive Comment
					• NGC Meeting held 16/3/20 as a teleconference due to COVID-19 –Dr Jane Li, Dr Susan Grayson & Dr Mohamed Nasreddine in attendance • HETI Radiology Directors of Training Meeting 20/3/19 – Dr Jane Li in attendance • HETI Radiology Directors of Training Meeting 24/9/19 – Dr Jane Li in attendance • RANZCR DoT Introduction Webinar – Webinar – Dr Nasreddine 22 & 24.07.20 1730 – 2130 hrs			
1.3.1	Westmead Hospital to demonstrate compliance to the AMA safe working hours and Public Hospital Medical Officers (State) Award 2018 guidelines to manage fatigue and wellbeing of trainees. Rostered working hours and any unrostered overtime	Demonstrate compliance to the AMA safe working hours and Public Hospital Medical Officers (State) Award 2018 guidelines to manage fatigue and wellbeing of trainees.	Head of Department of Radiology, Westmead Hospital	DoT Director of Medical Services, Westmead Hospital	The Department's working conditions comply with AMA safe working hours. The Senior Registrar has not identified any infringement in relation to working hours and general consensus is that safe working hours are provided. It is noted that: • Shifts are structured and spread amongst registrar cohort • Volume of work afterhours is high at Westmead due to being a Level 6 Trauma centre. The volume is highest from 1800 – 2200 hrs on week days, and during the weekends • Evening shift - registrars helping at 1600 – 1700 hrs by overlapping shifts • After hours shifts are audited to ensure even share amongst registrar cohort. In the past, registrars and DOTs have proposed overlapping the Radiology Registrar roster from 1800 – 2100 hrs; while this has been considered it is noted that: • This has the disadvantage of increasing the number of after hour shifts; • Reduces the access to scheduled morning teaching; and, • There are insufficient number of Radiology Registrars employed to permit such a roster change In summary, due to the current volume of after-hours CT referrals, there is a requirement for an additional junior workforce. The Department has previously proposed	College to confirm with the Advanced Trainees	**Criterion in Progress** **However:** • Documentary Evidence to be supplied.	• Commitment from Westmead Hospital to encourage trainees to leave work at a reasonable time and discourage unnecessary overtime. • Ensure Trainees are supported to record and submit overtime activity via UROC. Monitored at a District level and breaches of Safe Working hours followed up by Chief Medical Advisor. • Support ongoing checks around roster development for trainees to ensure achievement of reasonable shift coverage. • Brief approved (currently advertised) to recruit SRMO's to reduce non-reporting duties of RANZCR Trainees. • Recruitment to current Radiologist vacancies will likely reduce workload for Trainees.

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Identified Criterion	Recommendation	Action Required	Accountable Officer	Responsible Officer	Progress Update	Supporting Evidence	RANZCR Accreditation Review	Westmead Hospital Executive Comment
					the appointment of SRMOs to support cannulation, review patients with allergic reactions/contrast extravasation, filtering radiology referrals, SECTRA documentation, assessing bloods/clinical information eMR – and general support to the evening Radiology Registrar. This proposal was not supported by the Organisation and workforce needs need to be reviewed again with a view to exploring non-SRMO support to the Department. All WSLHD junior medical staff are supported to record and submit overtime activity; this is monitored at a District level and any breaches of safe working hours addressed by the Directors of Medical Services			
1.6.3	Westmead Hospital to approach the Network to allow BreastScreen to apply to become an accredited linked training site.	Approach the Network to allow BreastScreen to apply to become an accredited linked training site	Head of Department of Radiology, Westmead Hospital	DoT	Discussion have occurred with the relevant clinical leadership at BreastScreen to progress an application for recognition from RANZCR to further support radiology training.	Nearing completion	**Criterion Met and in progress** • **Application received by College**	
1.4.1	Westmead Hospital to demonstrate appropriate stakeholder involvement regarding decision making including but not limited to rotations and equal Network education access.	Demonstrate appropriate stakeholder involvement regarding decision making including but not limited to rotations and equal Network education access.	DoT's LAN 2 Network Director	DoT's LAN 2 Network Director	Westmead, as part of the Network has been a stakeholder in designing a new network education program. Westmead trainees have been rotating to accredited training sites within the network to RPA, Concord, Blacktown Mt Druitt & Orange. Trainees are consulted by way of a preference form, listing the most desired rotation in number order. DoT's are consulted at times for more complex determinations. Rotations to other sites within the network occur in the 2nd year of training. This is dependent upon whether the trainee has passed their Part 1 exam, in which they have 4 attempts in the first 2 years of their training. This places limiting factors as to who can be rotated in the 2nd year, as some may need to complete exams. It is not desirable to send trainees on a rotation whilst exam completion is pending. Whilst we wait for Series 1 exam results around November, advice of rotation letters are often not get sent until December. Trainees who have passed on their first attempt are usually sent on rotation in the beginning of the following year with sufficient	Appendix 3	**Criterion Met**	

Identified Criterion	Recommendation	Action Required	Accountable Officer	Responsible Officer	Progress Update	Supporting Evidence	RANZCR Accreditation Review	Westmead Hospital Executive Comment
					notice. Westmead trainees also have access and are rostered to Paediatric teaching as determined and planned by The Children's Hospital at Westmead DoT in conjunction with the NESO in the 3rd training year. Westmead trainees are rostered to BCI, Nuclear Medicine, Obstetrics & Gynaecology & Foetal Wellbeing on a sessional basis (rather than a block) at regular intervals. Further examples of Westmead registrar educational opportunities are attached as Appendix 3 – Registrar Educational Activities.			
1.6.1	Westmead Hospital to provide adequate and dedicated computer access within the trainee space.	Provide adequate and dedicated computer access within the trainee space.	General Manager, Westmead Hospital	RIS PACS Team	Completed	N/A	**Criterion Met** **However:** • Documentary Evidence to be supplied.	• Please see attached evidence
1.6.1	Westmead Hospital to provide immediate replacement for needed computer screen equipment.	Provide immediate replacement for needed computer screen equipment.	General Manager, Westmead Hospital	RIS PACS Team	Completed	N/A	**Criterion Met** **However:** • Documentary Evidence to be supplied.	• Please see attached evidence
1.6.2	Westmead Hospital to provide evidence of research access and assistance for trainees.	Provide evidence of research access and assistance for trainees.	Head of Department of Radiology, Westmead Hospital	Head of Department of Radiology, Westmead Hospital	There is an existing resource available to provide assistance to trainees.	N/A	**Criterion Met** **However:** • Documentary Evidence to be supplied.	• Please see attached evidence
1.6.3	Westmead Hospital to provide a confirmation of intended equipment and additional FTE for the expanded clinical radiology department.	Provide a confirmation of intended equipment and additional FTE for the expanded clinical radiology department.	General Manager, Westmead Hospital	Head of Department	"Model of Care" and "Workforce Model" completed for the new Clinical Acute Services Building (CASB) WSLHD currently engaged in a range of consultations, including with the relevant Unions in relation to planning for CASB services.	N/A	**Criterion in Progress** **However:** • Documentary Evidence to be supplied. • Please provide a detailed update of this criterion	• Request for additional Radiologist FTE being progressed • CASB opening will be staged. Only ED Radiology service will be opened initially. • Please see attached evidence.
2.2.1	Westmead Hospital to provide evidence of trainee exposure to an adequate and broad case mix.	Provide evidence of trainee exposure to an adequate and broad case mix.	DoTs	DoTs	Please refer to trainee logbooks on TIMs to exposure as assessed by the Directors of Training. Please see a copy of the 2019 radiology trainee rosters which indicate exposure to an adequate and broad case mix	Registrar logbooks on TIMS Appendix 4	**Criterion Met** Documentary Evidence Supplied.	

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Identified Criterion	Recommendation	Action Required	Accountable Officer	Responsible Officer	Progress Update	Supporting Evidence	RANZCR Accreditation Review	Westmead Hospital Executive Comment
2.2.4	Westmead Hospital to provide evidence of recruitment for one FTE dedicated administration support.	Provide evidence of recruitment for one FTE dedicated administration support.	N DOT	Head of Department of Radiology, Westmead Hospital	WSLHD is supporting the vacancy created by the resignation of the LAN ESO position with 0.4 FTE while a review of the support needs occurs in conjunction with the WSLHD Education Director, the DoT's and Head of Department. Support related to research for the Trainees is provided through the 1.0 FTE Research officer. Meeting to assess support needs scheduled with WSLHD Education Director, the DoT's and Head of Department.	N/A	**Criterion Not Met** • Documentary Evidence to be supplied. • Please provide a detailed update of this criterion • Please note that this position is to be adequate to the departments needs and must not include ESO allocated time. The Research role is a separate allocated position as indicated.	• Appoint 0.6 FTE Research and Education Support Officer for Radiology in 2021. • Radiology Department to work with WSLHD REN to support role.
1.2.1	Westmead Hospital to provide evidence of the appropriate use of the Performance and Progression (Clinical Radiology) Policy, the Remediation in Training (Clinical Radiology) Policy and the Withdrawal from Training (Clinical Radiology) Policy.	Provide evidence of the appropriate use of the Performance and Progression (Clinical Radiology) Policy, the Remediation in Training (Clinical Radiology) Policy and the Withdrawal from Training (Clinical Radiology) Policy.	DoT's	DoT's LAN 2 Network Director	There are currently three trainees identified as requiring additional support. Each of these trainees is receiving additional supervision and support in their roles with oversight from the Directors of Training.	N/A College aware of situation.	**Criterion in Progress** **However:** • Documentary Evidence to be supplied. • Please provide a detailed update of this criterion	• Three (x3) trainees currently identified as requiring additional support and receiving additional supervision and support. • Ensure use of the appropriate policies, to allow for early identification and intervention for Trainees who may require additional support.
3.1.4	Westmead Hospital to provide evidence for each current trainee or a trainee on rotation within the past two years that has been provided Patient Safety Training.	Provide evidence for each current trainee or a trainee on rotation within the past two years that has been provided Patient Safety Training.	DoTs	DoTs	N/A	Appendix 5	**Criterion in Progress** **However:** • Documentary Evidence to be supplied. • Please provide a detailed update of this criterion	• DoT's to ensure all Trainees complete appropriate training on commencement, and ongoing training as required. DoT's to monitor and provide additional training as required.
3.1.5	Westmead Hospital to provide evidence for each current trainee or a trainee on rotation within the past two years that has undertaken the Report Writing Module.	Provide evidence for each current trainee or a trainee on rotation within the past two years that has undertaken the Report Writing Module.	DoTs	DoTs	N/A	Appendix 5	**Criterion in Progress** **However:** • Documentary Evidence to be supplied.	• DoT's to ensure all Trainees complete appropriate training on commencement, and ongoing training as required. DoT's to monitor and provide additional training as required.
3.1.6	Westmead Hospital to provide evidence for each current trainee or a trainee on rotation within the past two years that has been	Provide evidence for each current trainee or a trainee on rotation within the past two years that	DoTs	DoTS	N/A	Appendix 5	**Criterion in Progress** **However:** • Documentary Evidence	• DoT's to ensure all Trainees complete appropriate training on commencement, and ongoing training as required. DoT's to

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Identified Criterion	Recommendation	Action Required	Accountable Officer	Responsible Officer	Progress Update	Supporting Evidence	RANZCR Accreditation Review	Westmead Hospital Executive Comment
	provided Non- Medical Expert Role training	has been provided Non- Medical Expert Role training					to be supplied.	monitor and provide additional training as required.
3.3.1	Westmead Hospital to provide job descriptions stating the responsibilities of Clinical Supervisors in regard to supervision, training and teaching.	Provide job descriptions stating the responsibilities of Clinical Supervisors in regard to supervision, training and teaching.	DoT's Head of Department of Radiology, Westmead Hospital	DoT's LAN 2 Network Director	Please see attached a draft from the RANZCR Supervision & Training Policy specifically designed for instruction to clinical supervisors, which will now be included in orientation for new consultants and distributed to current consultants Please note that all the positions descriptions for all Radiology Consultants as part of their job descriptions include under Key Accountabilities a specific section dedicated to Supervision, Training and Education	Appendix 6 Copy of Position Description for Diagnostic and Interventional Radiologists available upon request	**Criterion Met** Documentary evidence supplied.	
3.3.1	Westmead Hospital to provide opportunities for Clinical Supervisors to undergo training to understand this role and responsibilities as it relates to training, teaching and assessment of trainees.	Provide opportunities for Clinical Supervisors to undergo training to understand this role and responsibilities as it relates to training, teaching and assessment of trainees.	General Manager	Head of Department of Radiology, Westmead Hospital	Opportunities to participate in upcoming HETI state-wide +roadshows during 2020 will be offered in preparation for the new training and assessment reform where clinical supervisors will have a greater role than they currently do. WSLHD will also provide copies of the RANZCR Supervision & Training Policy to each Clinical Supervisor to support understanding of the role. It is noted that the Directors of Training have attended the RANZCR DoT workshops. While not a specific recommendation, the report also makes a statement relating to on-call workload for trainees and references inadequate consultant support. This position is not supported by WSLHD and it is noted that: • There is no on-call for Radiology Registrars: they are rostered to shifts i.e. there is no on-call workload for Radiology Registrars with the exception of Senior Registrars contributing to MRI and IR on-call. • The Department does not believe that there is inadequate Consultant support. Radiologists either come in after-hours for interventional work or are available at any time through the night or weekends for consultation	Registrar Rosters Discussion with Senior Registrar	**Criterion in Progress** **However:** • Documentary Evidence to be supplied. • Please provide a detailed update of this criterion	• Roadshow has been delayed • Opportunity will be provided when Roadshow and Webinars occur • Emails have been sent to all clinical supervisors from Head of Department regarding role and responsibilities
1.5.1	Westmead Hospital Executive to provide a Risk Management Plan regarding high clinical	Risk Management Plan to be provided by Westmead Hospital Executive	Exec DMS	Director of Education	WSLHD's Director of Education will convene a monthly meeting with DOTs and Trainee representatives to monitor training in line with WSLHD's		**Criterion Not Met** • Documentary Evidence of a Risk Management	• Please see the attached Westmead Hospital Radiology Department Risk Management Plan

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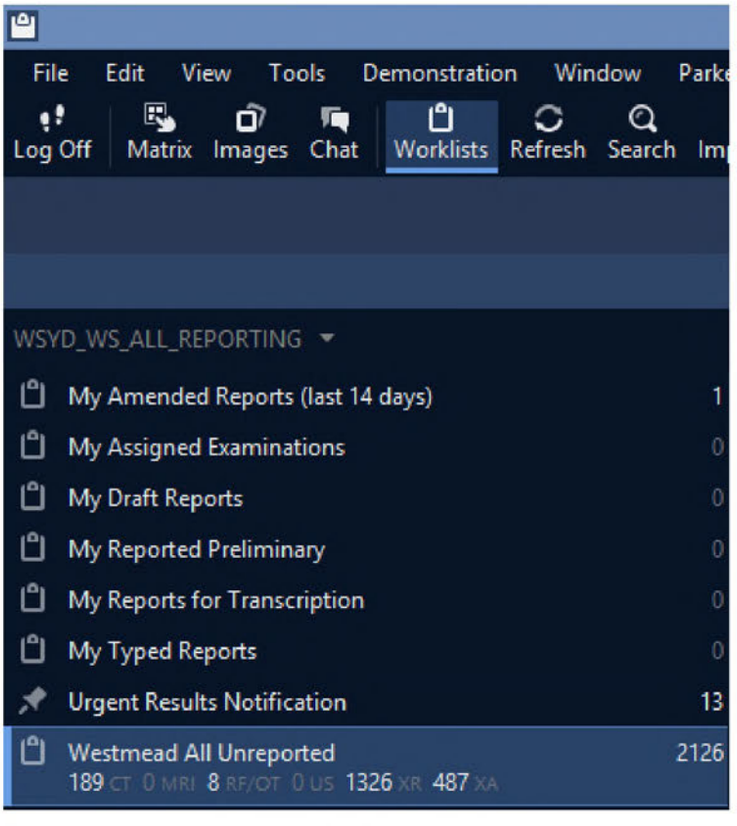
Identified Criterion	Recommendation	Action Required	Accountable Officer	Responsible Officer	Progress Update	Supporting Evidence	RANZCR Accreditation Review	Westmead Hospital Executive Comment
	workload and consultant and trainee wellbeing with clearly identified milestones that will be monitored.				Education Quality Framework (Appendix 2 – WSLHD Education Quality Framework). This regularly meeting will cover: 1) Learning environment and culture (and will include discussion about hours and wellbeing) 2) 2)Education Governance and Leadership (DoT and supervisor concerns) 3) Supporting and empowering learners (access to educational activities and exam preparation) 4) Supporting and empowering educators (any concerns from educators) 5) Implementing curricula and assessments (update from DoT's and Network Director) This meeting will report monthly to the Executive Director of Medical Services		Plan to be supplied. • Please provide a detailed update of this criterion	
	Conduct a debrief session with all consultants and trainees discussing outcome of accreditation site visit – evidence to be supplied to support.					N/A	**Criterion Not Met** • Documentary Evidence to be supplied.	• Outcome of accreditation site visit relayed via Individual discussions and Group Staff Specialist meetings. • Plan to discuss with Trainees when Trainees return from exam leave.
6 Month Actions								
1.1.1	Westmead Hospital to address the FTE resources and provide evidence of recruitment of an additional two FTE consultants to address the high clinical workload to enable better access to education, supervision and improve wellbeing of trainees and consultants.	Address the FTE resources and provide evidence of recruitment of an additional two FTE consultants to address the high clinical workload to enable better access to education, supervision and improve wellbeing of trainees and consultants.	General Manager	Head of Department of Radiology, Westmead Hospital	Refer to Item 1	Refer to Item 1	**Criterion Not Met** • Documentary Evidence to be supplied.	• Approval for recruitment of additional 4.0 FTE Radiologists. Unsuccessful recruitment thus far. • Current vacancy is 5.0 FTE Radiologists. 2.0 FTE (currently on long term leave) expected to recommence Feb 2021. 1.0 FTE has expressed intention to return in 2021. • Brief in progress to recruit VMO's to backfill current vacancies (related to resignations, extended sick and long service leave).

Pram	Bugaboo Fox2	1330	buy
Bassinet	Baby Bjorn	129	hire 6 months
Capsule	Bugaboo Turtle by nuna	250	hire 6 months
Chest of drawers	Ikea Koppang	199	
Changing mat	Leander	180	
Cot	Leander	700	Gumtree
		2788	



Unreported Westmead Examinations: As at 05/11/2020

CT: 189

Fluoroscopy: 8

Plain films: 1326

Angiography: N/A – these studies are performed by the Vascular Surgeons

Appendix 4

Westmead Registrar Tutorial Timetable

	AM	PM
Monday	Pathology Tutorial – Dr N Young (Fortnightly)	Raymond tutorial (weekly) – miscellaneous (abdo, MSK, Neuro)
Tuesday	Paeds – Dr Thambugala/ Alternate week Spine/Body - Dr Karunaratne	MSK – Dr T Peduto (weekly) Alternate week Abdo/Chest - Dr J Li
Wednesday	MRI meeting – monthly case review	1st year tutorials – Dr J Li (alternate week) Body/Neuro - Dr K Nguyen
Thursday	O& G (Karen from Maternity Fetal Med)	NICU meeting – Dr THambugala (monthly) Petrous temporal bone meeting & Neuro meeting – Dr L Gomes/ De Cruz (monthly)
Friday	Abdo/Intervention – Dr S So (weekly)	Angio – Dr KP Wong (weekly)

For Part 2 Exam candidates, there are additional tutorials by

Dr N Karunaratne* Spine,

Dr Jane Li*MSK/O&G,

Dr Rob De-Costa *MSK,

Dr Michael Vowels *Plain films,

Dr Kim-Son Nguyen*Body,

Dr Mark Soo*Neuro/spine

Prof Lavier Gomes *Neuro/H&N

Dr Aruni Thambugala *Paeds

Appendix 9

The Faculty of Clinical Radiology

Local Area Network 2

Blacktown Mt Druitt | Concord | Orange Base | Royal Prince Alfred | Westmead

POSITION DESCRIPTION RADIOLOGY CLINICAL SUPERVISOR

Definition:

Clinical Supervisor means any consultant radiologist who supervises a session or modality.

Qualifications and skills:

A clinical supervisor may only be accredited when they are:

- a Fellow if the RANZCR or Educational Affiliate who has been granted full specialist recognition as a radiologist by means of entry into the specialist register or other category as deemed appropriate by the relevant State or Territory medical board
- a Fellow of another Australia/New Zealand College in the case of specific sub-specialty training

In conjunction with the Director/s of Training the Clinical Supervisor will be expected to:

Provide formative assessment of trainee progression

Supervise the professional education and clinical training of trainees

Monitor a trainee's progression by personal observation, feedback and discussion with DoT

Promptly inform the DoT about perceived unsatisfactory trainee performance

RESPONSIBILITIES

Clinical supervisors must supervise trainees on a daily basis. The departmental roster must clearly indicate the clinical supervisor on a daily basis

The supervising clinical supervisor should review all trainee reports and ideally supervised face to face, allowing for jurisdictional differences, however, the degree of supervision may vary depending on the experience and level of training of the registrar. As more experience and seniority are achieved registrars may report in a more independent fashion at the discretion of the clinical supervisor.

The number of mandatory hours clinical supervisors required to actively supervise trainees per session are 1 hour per session, an average of 8 hours per week (as per the Supervision, Training and Teaching of Clinical Radiology Trainees) .The number of mandatory hours

trainees are required to spend in supervision, training and teaching onsite is 12-14 hours per week.

Examples of training and teaching activities a clinical supervisor is expected to participate include:

a/ observation of procedures / exams

b/ completion of in training assessments (eg: DOPs, Mini IPX, MSF, Projects)

c/ attendance at formal teaching sessions

d/ clinical meetings

e/ presenting at formal teaching sessions

f/ participation in journal clubs

g/ completion of experiential training requirements

h/ report writing

i/ reviewing archived teaching cases

For the majority of their first year registrars should not report studies unless they are under the direct supervision (consultant physically present) of the clinical supervisor and those studies are reviewed by the clinical supervisor

Interventional procedures should be directly supervised by the clinical supervisor (in the room), unless there is prior agreement as to the competence of the registrar and the clinical supervisor is on site and available at short notice.

No matter what level of supervision, the names or initials of the clinical supervisor for the clinical area should be included in the written report. This can be either to have the clinical supervisors name in full when they have reviewed the films and have direct input to the report, or if the registrar is acting more independently, because it is bilaterally agreed between the clinical supervisor and trainee that they are sufficiently competent, the clinical supervisor may indicate in brackets.

The clinical supervisor to have input along with the HOD, NTD & DoT as to whether a trainee is competent to begin performing on call duties after the Key Conditions in Year 1 of Training has been completed and a period of 4 months has elapsed

Clinical supervisor must be clearly designated who is on duty with the trainee or on call with them

The names or initials of the clinical supervisor must be included in any reports produced by the on call registrar

Training Network Director – Associate Professor Lourens Bester
Network Education Support Officer – Mrs Kim Watson
Phone: (02) 8890 6661
Mobile: 0428 875 259

Appendix 7

From: George Mcivor (Western Sydney LHD)
Sent: Monday, March 23, 2020 3:56 PM
To: 'Bruce Dennien'; 'George - Home'; 'Jane Li'; 'Kevin Ng - Home'; Kevin Ng (Western Sydney LHD); 'Lavier Gomes - Home'; Lavier Gomes (Western Sydney LHD); Luke Baker (Western Sydney LHD); 'Michael Vowels - Home'; 'Mohamed Nasreddine - Home'; Mohamed Nasreddine (Western Sydney LHD); 'Nisha - Home'; Nishantha Karunaratne (Western Sydney LHD); 'Noel Young'; 'Philip Vladica - Home'; 'Rafid Al-Asady'; Raymond Lee (Central Coast LHD); 'Rob Schamschula'; 'Robert de Costa'; 'Simon so'; 'Susan Grayson'; 'Tony Peduto - Home'
Cc: [redacted]
Subject: Director of Training Protected Time

Hi Kevin, Raymond,

In order to comply with the 2019 Accreditation Site Visit Report (attached), the Directors of Training are required to be rostered for five (5) hours each per week as Protected Time.

In order to comply: on days where there are > 5 Radiologists rostered, can you please roster Jane to five (5) hours per week Protected Time.

When Mohamed is appointed, this will also extend to him: I will let you know when the College confirms his appointment.

Please note: if staff numbers fall below 5 Radiologists due to COVID-19 infection on the day that they would have been rostered to Protected Time, please assign the Radiologist to reporting duties. Radiology Registrars will be able to still communicate with them on an ad hoc basis.

Thank you.

Regards,

George

Dr George McIvor

Clinical Director, Radiology Dept | **Medical Imaging**
Level 2 - Westmead Hospital, Westmead, NSW 2145
Tel 02 [redacted] | Fax 02 [redacted] | Mob [redacted] | [redacted] |

NSW GOVERNMENT Health
Western Sydney
Local Health District

	MON 7 Sep 20	TUE 8 Sep 20	WED 9 Sep 20	THU 10 Sep 20	FRI 11 Sep 20	SAT 12 Sep 20	SUN 13 Sep 20	MON 14 Sep 20	TUE 15 Sep 20	WED 16 Sep 20	THU 17 Sep 20	FRI 18 Sep 20	SAT 19 Sep 20	SUN 20 Sep 20	MON 21 Sep 20	TUE 22 Sep 20	WED 23 Sep 20	THU 24 Sep 20	FRI 25 Sep 20	SAT 26 Sep 20	SUN 27 Sep 20	MON 28 Sep 20	TUE 29 Sep 20	WED 30 Sep 20	THU 1 Oct 20	FRI 2 Oct 20	SAT 3 Oct 20	SUN 4 Oct 20
-															HET	HET												
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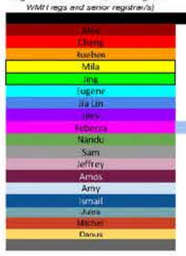
-																												
REGULAR MEETINGS																												
Pathology tutorial (Young): Mon 08:00								Haem														Respiratory						
Rehab meeting: Mon 12:30 1st week	Amy																											
Neuro-oncology meeting: Tues 07:30 1st,2nd, 3rd +/- 5th wk (88905764 Karen Beresford)		Amos Alex							Amy Jules Danus							Jia Lin Nandu							Rebecca Amy						
Renal meeting: Tues 08:00																												
Lymphoma meeting: Tues 09:00																												
MRI meeting (Padula): 1st Wed of month 07:30																												
Haematology meeting: Wed 09:00			Sam							Sam							Jeffrey Jules							Amy				
ED meeting: Wed 09:00 1st wk			Jing							Jeffrey							Amy							Sam				
Auburn medical student teaching: TBA Wed																												
ID meeting: Wed 14:00					Rebecca														Nandu									
Head & neck meeting: Fri 08:30 fortnightly				Amos							Amos							Amos							Amos Amos (ILD)			
Respiratory																												
PTB																												
Notes: ILD (1st Thur of month) - Endocrine (Angio fellow) - Immunolpy (? Jules Harvey)				Angio Fellow																								
Liver MDT: Mon 13:00-14:00				Endocrine																								
DAILY ROSTER																												
AUBURN	Jeffrey	Jing	Danus	Rueben	Jules			Jules	Jeffrey	Danus	Rueben	Amy			Sam	Rueben	Chang	Rebecca	Jia Lin			Jia Lin	Jia Lin	Jing	Danus	Alex		
MRI DAY			Jeffrey	Amy	Rebecca				Amy														Amy	Nandu	Jia Lin				
ARGIO DAY																												
FLUORO	Danus	Rueben	Rebecca	Jing	Danus			Jeffrey	Rueben	Jules	Danus	Rueben			Chang	Chang	Rueben	Rueben	Jeffrey			Chang	Chang	Jia Lin	Jing	Danus		
CT(E) AM	Rebecca	Alex	Jing	Danus	Alex			Amy	Danus	Rueben	Alex	Danus			Jeffrey	Amy	Rebecca	Jia Lin	Rueben			Amy	Danus	Rebecca	Nandu	Jia Lin		
ANGIO AM																												
CT(R) AM	Jing	Danus	Jules	Jules	Jeffrey			Danus		Jeffrey					Amos	Nandu	Amy	Jeffrey	Nandu			Danus	Nandu	Amos	Rebecca	Amy		
CT(R) AM		Amy																										
X-RAY AM	Alex	Jeffrey	Rueben	Rebecca	Amy			Alex	Jules	Amy	Amy				Nandu	Rebecca	Alex	Chang	Amy			Nande	Rebecca	Amy	Amy				
X-RAY AM			Amy	Jeffrey													Nandu	Nandu										
MRI AM												Jeffrey																
MAMMO AM	Amy																											
NUC MED AM	Nandu	Nandu	Nandu	Nandu	Nandu			Nandu	Nandu	Nandu	Nandu	Nandu																
TEACHING AM																Jia Lin	Jeffrey											
TEACHING AM																												
ULTRASOUND PM	Jing	Jeffrey	Rueben	Jeffrey	Alex			Alex	Danus	Rueben	Amy	Jeffrey			Nandu	Rebecca	Jeffrey	Chang	Amy			Nande	Rebecca	Amy	Amy	Jia Lin		
ANGIO PM																												
CT(R) PM	Alex	Danus	Jing	Danus	Amy			Danus		Amy					Amos	Nandu	Jules	Jeffrey	Nandu			Amy	Danus	Amos	Nandu				
CT(R) PM			Amy														Rebecca											
X-RAY PM	Rebecca	Alex	Jules	Rebecca	Jeffrey			Amy	Jules	Jeffrey	Alex	Danus			Jeffrey	Amy	Nandu	Nandu	Rueben			Danus	Nandu	Rebecca	Rebecca	Amy		
X-RAY PM	Amy			(H&N prep)				(N Onc Prep)									Amy	(H&N prep)										
MRI PM																												
MAMMO PM		Amy		Amy														Jia Lin										
NUC MED PM	Nandu	Nandu	Nandu	Nandu	Nandu			Nandu	Nandu	Nandu	Nandu	Nandu																
TEACHING PM																Jia Lin												
TEACHING PM																												
MEETING PREP PM																												
TRAINEE REG 1																												
TRAINEE REG 1 SHIFT AM																												
TRAINEE REG 1 SHIFT PM																		Amy Amy										
TRAINEE REG 2																												
TRAINEE REG 2 SHIFT AM																												
TRAINEE REG 2 SHIFT PM																												
TRAINEE REG 3 SHIFT AM																												
TRAINEE REG 3 SHIFT PM																												
SENIOR REG - Sam	Neuro	Neuro	Neuro	MRI	Neuro			Neuro	MRI	Neuro	Neuro	Neuro			Neuro	Neuro	Neuro	Neuro	MRI	Neuro			Neuro	Neuro	Neuro	Neuro	Sick		
SENIOR REG - Ismail	Angio Chest	Angio MRI	Angio Chest	Angio Chest	Breast Screen			Angio ADO	Angio Nuc Med	Angio Interview	ADO MRI	MSK Chest			Angio CT(R)	Angio MRI	Angio Chest	Angio Paed	MSK Paed			Angio Angio	Angio MRI	Angio Chest	Angio MRI	MSK Angio		
SENIOR REG - Amos					Nuc Med																							
AFTER HOURS																												
MORNING COVER	Alex	Danus	Rueben	Jing	Ismail			Jules	Danus	Jeffrey	Amy	Rueben			Chang	Nandu	Rebecca	Rueben	Amy			Danus	Amy	Rebecca	Nandu	Jules		
LUNCH COVER	Amy	Amos	Jing	Jules	Jeffrey			Alex	Jules	Amy	Alex	Jeffrey			Ismail	Chang	Jules	Amos	Jeffrey			Amy	Sam	Amos	Rebecca	Amy		
WEEKEND/PUBLIC HOLIDAY						Mila	Chang						Jia Lin	Rueben						Jeffrey	Rebecca						Alex	Jia Lin
EVENING	Rueben	Rebecca	Alex	Alex	Rueben			Rebecca	Alex	Alex	Jeffrey	Jia Lin			Rueben	Jeffrey	Jia Lin	Jules	Chang			Jing	Jing	Chang	Chang	Jing		
NIGHT	Jia Lin	Jia Lin	Jia Lin	Jia Lin	Jing	Jing	Jing	Jing	Jing	Jing	Jing	Alex	Alex	Alex	Alex	Alex	Alex	Alex	Chang	Jules	Jules	Jules	Jules	Jules	Chang	Chang	Chang		
ON CALL																												
MRI ON CALL	Santa	Santa	Santa	Santa	Santa	Santa	Santa	Sam	Sam	Sam	Sam	Sam	Sam	Sam	Amos	Amos	Amos	Amos	Amos	Amos	Amos	Sam	Sam	Sam	Sam	Sam	Sam	Sam
TERMS																												
US TERM AM																												
US TERM PM																												
pre - KIDS TERM																												
KIDS TERM																												
FETAL WELFARE LAB																												
Nuclear Medicine Term																												
EXT ROTATION FROM WMH	Mila	Mila	Mila	Mila	Mila			Mila	Mila	Mila	Mila	Mila			Mila	Mila	Mila	Mila	Mila			Mila	Mila	Mila	Mila	Mila		
EXT ROTATION FROM WMH	Eugene	Eugene	Eugene	Eugene	Eugene			Eugene	Eugene	Eugene	Eugene	Eugene			Eugene	Eugene	Eugene	Eugene	Eugene			Eugene	Eugene	Eugene	Eugene	Eugene		
LEAVE																												
POST NIGHTS	Chang	Chang	Chang	Chang	Jia Lin	Jia Lin	Jia Lin	Jia Lin	Jia Lin	Jia Lin	Jia Lin	Jing	Jing	Jing	Jing	Jing	Jing	Jing	Alex	Alex	Alex	Alex	Alex	Alex	Alex	Jules	Jules	Jules
POST NIGHTS																												
LEAVE	Jules	Jules			Chang			Chang	Chang	Chang	Chang	Chang		Mila	Jules	Jules			Jing			Rueben	Rueben	Rueben	Rueben	Rueben		
LEAVE								Amos	Rebecca	Rebecca	Jules	Jing			Jia Lin				Rebecca			Rebecca				Rebecca		
LEAVE											Santa				Danus	Danus	Danus	Danus	Danus									
LEAVE															Rebecca													
LEAVE																												
LEAVE																												
LEAVE																												
SNR REG LEAVE																												
SNR REG LEAVE																						Jeffrey	Jeffrey	Jeffrey	Jeffrey	Jeffrey		
MRI FELLOW LEAVE																											Mila	Mila
SICK								Rueben			Rebecca	Rebecca			Amy								Danus			Nandu		
SICK																										Ismail		
LEAVE AM																												
LEAVE PM																												
Preliminary leave requests																												
Preliminary leave requests																												
Preliminary leave requests																												
ADMIN SECTION																												
Roster Notes																												
Allocated Regs *(should be equal to "available regs" on weekdays; including part-time; excluding trainee regs). Note: number may be 1 less due to part-time reg., unless they are on leave*	10	12	12	13	12	3	3	11	10	10	9	9	3	3	9	10	11	12	9	3	3	9	10	10	10	9	3	3
Available Regs *(including part-time; excluding trainee regs)*	5	5	8	10	5	10	10	7	5	5	6	6	10	9	5	7	5	5	6	10	10	7	7	7	5	5	10	10
Unavailable Regs *(Post-nights/Trainee Reg/Sick/Leave/Kids; excluding senior registrars)*	6	6	5	1	7	1	1	4	3	3	5	5	1	2	7	4	3	3	5	1	1	4	4	4	3	5	1	1
Total WMH-employed regs *(including WMH regs on external rotation; excluding non-WMH regs and senior registrars)*	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11



Unit	Staff Numb	Surname	First Name	Grade	Net Hours	Total Assig	Total Contr	Hours Left
366935 WI	60026639	Khoo	Amy	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	40045609	Dantanaray	Nandula	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	56153777	Lau	Suang	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	40017871	Saththianat	Mayuran	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	60013181	Irani	Mazyar	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	40045746	Yam	Mitchell	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	60022128	Hettige	Sanjay	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	60023729	Wang	Jeffrey	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	40030755	Goolam	Ismail	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	60044585	Yeo	Cheng Hon	MO-REG-Y4		97.00	114.28	17.28
366935 WI	60083114	Lim	Rebecca	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	40045678	Conynghan	Samuel	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	60139586	Ravindran	Danus	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	56158613	Ganeshalin	Rueben	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	60113672	Mohotti	Jeewaka	MO-REG-Y4		120.00	114.28	-5.72
366935 WI	60062536	Chua	Jia Lin	MO-REG-Y3		120.00	114.28	-5.72
366935 WI	60085070	Kirwan	Alexander	MO-REG-Y1		120.00	114.28	-5.72
366935 WI	60055374	Harvey	John	CM-CMO-2-Y4		120.00	114.28	-5.72
366935 WI	60051967	Zhu	Jing Zhou	MO-RMO-Y3		120.00	114.28	-5.72

Total Non-I	Total Overt	Rostered O	Rostered Overtir	Unrosterec	Unrosterec	Call Back H	Call Back %
64.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
80.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
8.00	12.00	12.00	10.50%	0.00	0.00%	0.00	0.00%
48.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
8.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
24.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
16.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
32.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
8.00	9.00	0.00	0.00%	9.00	7.88%	0.00	0.00%
8.00	2.25	0.00	0.00%	2.25	1.97%	0.00	0.00%
72.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
40.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
24.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
8.00	16.00	15.00	13.13%	1.00	0.88%	0.00	0.00%
80.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
8.00	39.00	38.00	33.25%	1.00	0.88%	0.00	0.00%
40.00	14.00	14.00	12.25%	0.00	0.00%	0.00	0.00%
8.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
0.00	17.50	17.50	15.31%	0.00	0.00%	0.00	0.00%

Unit	Staff Numb	Surname	First Name	Grade	Net Hours	Total Assig	Total Contr	Hours Left
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366935 WI	40045609	Dantanaray	Nandula	MO-REG-Y4		152.00	154.28	2.28
366935 WI	56153777	Lau	Suang	MO-REG-Y4		152.00	154.28	2.28
366935 WI	40017871	Saththianat	Mayuran	MO-REG-Y4		152.00	154.28	2.28
366935 WI	60013181	Irani	Mazyar	MO-REG-Y4		152.00	154.28	2.28
366935 WI	40045746	Yam	Mitchell	MO-REG-Y4		152.00	154.28	2.28
366935 WI	60022128	Hettige	Sanjay	MO-REG-Y4		152.00	154.28	2.28
366935 WI	60023729	Wang	Jeffrey	MO-REG-Y4		144.00	154.28	10.28
366935 WI	40030755	Goolam	Ismail	MO-REG-Y4		152.00	154.28	2.28
366935 WI	60044585	Yeo	Cheng Hon	MO-REG-Y4		144.00	154.28	10.28
366935 WI	60083114	Lim	Rebecca	MO-REG-Y4		152.00	154.28	2.28
366935 WI	40045678	Conynghan	Samuel	MO-REG-Y4		152.00	154.28	2.28
366935 WI	60139586	Ravindran	Danus	MO-REG-Y4		152.00	154.28	2.28
366935 WI	56158613	Ganeshalin	Rueben	MO-REG-Y4		152.00	154.28	2.28
366935 WI	60113672	Mohotti	Jeewaka	MO-REG-Y4		158.00	154.28	-3.72
366935 WI	60062536	Chua	Jia Lin	MO-REG-Y3		132.00	154.28	22.28
366935 WI	60085070	Kirwan	Alexander	MO-REG-Y1		152.00	154.28	2.28
366935 WI	60055374	Harvey	John	CM-CMO-2-Y4		152.00	154.28	2.28
366935 WI	60051967	Zhu	Jing Zhou	MO-RMO-Y3		152.00	154.28	2.28

Total Non-I	Total Overt	Rostered O	Rostered O	Unrosterec	Unrosterec	Call Back H	Call Back %
8.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
56.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
8.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
40.00	0.00	0.00	0.00%	0.00	0.00%	13.43	8.71%
0.00	15.00	12.00	7.78%	3.00	1.94%	0.00	0.00%
0.00	12.50	0.00	0.00%	12.50	8.10%	3.00	1.94%
48.00	19.00	18.00	11.67%	1.00	0.65%	0.00	0.00%
56.00	12.00	12.00	7.78%	0.00	0.00%	0.00	0.00%
0.00	0.00	0.00	0.00%	0.00	0.00%	1.33	0.86%
48.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
16.00	12.00	12.00	7.78%	0.00	0.00%	0.00	0.00%
0.00	20.00	20.00	12.96%	0.00	0.00%	0.00	0.00%
0.00	26.00	26.00	16.85%	0.00	0.00%	0.00	0.00%
0.00	39.00	38.00	24.63%	1.00	0.65%	0.00	0.00%
0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
40.00	26.00	26.00	16.85%	0.00	0.00%	0.00	0.00%

Unit	Staff Numb	Surname	First Name	Grade	Net Hours	Total Assig	Total Contr	Hours Left
366935 WI	60026639	Khoo	Amy	MO-REG-Y4		144.00	160.00	16.00
366935 WI	40045609	Dantanaray	Nandula	MO-REG-Y4		160.00	160.00	0.00
366935 WI	56153777	Lau	Suang	MO-REG-Y4		160.00	160.00	0.00
366935 WI	40017871	Saththiana	Mayuran	MO-REG-Y4		160.00	160.00	0.00
366935 WI	60013181	Irani	Mazyar	MO-REG-Y4		160.00	160.00	0.00
366935 WI	40045746	Yam	Mitchell	MO-REG-Y4		160.00	160.00	0.00
366935 WI	60022128	Hettige	Sanjay	MO-REG-Y4		160.00	160.00	0.00
366935 WI	60023729	Wang	Jeffrey	MO-REG-Y4		160.00	160.00	0.00
366935 WI	40030755	Goolam	Ismail	MO-REG-Y4		160.00	160.00	0.00
366935 WI	60044585	Yeo	Cheng Hon	MO-REG-Y4		166.00	160.00	-6.00
366935 WI	60083114	Lim	Rebecca	MO-REG-Y4		160.00	160.00	0.00
366935 WI	40045678	Conynghan	Samuel	MO-REG-Y4		162.00	160.00	-2.00
366935 WI	60139586	Ravindran	Danus	MO-REG-Y4		160.00	160.00	0.00
366935 WI	56158613	Ganeshalin	Rueben	MO-REG-Y4		154.00	160.00	6.00
366935 WI	60113672	Mohotti	Jeewaka	MO-REG-Y4		160.00	160.00	0.00
366935 WI	60062536	Chua	Jia Lin	MO-REG-Y3		160.00	160.00	0.00
366935 WI	60085070	Kirwan	Alexander	MO-REG-Y1		160.00	160.00	0.00
366935 WI	60055374	Harvey	John	CM-CMO-2-Y4		160.00	160.00	0.00
366935 WI	60051967	Zhu	Jing Zhou	MO-RMO-Y3		160.00	160.00	0.00

Total Non-	Total Over	Rostered C	Rostered C	Unrostered	Unrostered	Call Back H	Call Back %
0.00	40.00	38.00	23.75%	2.00	1.25%	0.00	0.00%
8.00	12.00	12.00	7.50%	0.00	0.00%	0.00	0.00%
8.00	2.00	0.00	0.00%	2.00	1.25%	0.00	0.00%
56.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
16.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
0.00	9.75	8.00	5.00%	1.75	1.09%	0.92	0.57%
8.00	29.00	26.00	16.25%	3.00	1.88%	0.00	0.00%
24.00	10.50	0.00	0.00%	10.50	6.56%	0.00	0.00%
24.00	46.00	44.00	27.50%	2.00	1.25%	0.00	0.00%
8.00	15.00	12.00	7.50%	3.00	1.88%	0.00	0.00%
0.00	7.00	2.50	1.56%	4.50	2.81%	2.83	1.77%
16.00	9.00	9.00	5.63%	0.00	0.00%	0.00	0.00%
16.00	20.00	18.00	11.25%	2.00	1.25%	0.00	0.00%
8.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
0.00	1.00	0.00	0.00%	1.00	0.63%	0.00	0.00%
48.00	38.00	38.00	23.75%	0.00	0.00%	0.00	0.00%
0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%
0.00	16.50	12.00	7.50%	4.50	2.81%	0.00	0.00%

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NSW GOVERNMENT Health
Western Sydney Local Health District

MEDICAL IMAGING

MODEL OF SERVICE DELIVERY

November 2019
Version 1.0 (FINAL)

18.12.19 GM's Amendments

DOCUMENT ADMINISTRATION

Version	Date	Issued To	Remarks
0.1	March 2018	PUG	Draft written
0.2	May 2018	PUG	Comments added
0.3	July 2018	PUG	Comments added by Julie Meyer
0.4	August 2018	PUG	Current and future services table added- pending verification.
0.5	August 2018	George McIvor	Adult service provisions added
0.6	October 2018	Michelle Lincoln	Children's service provisions added in consultation with PUG leads
0.7	October 2018	George McIvor	Contend added and edited
0.8	August 2019	Project User Group	Content added and updated by Natasia Seo & Amanda Green
0.9	September 2019	PUG Champions	Workforce options added by Natasia Seo & Amanda Green
0.10	October 2019	PUG Champions	Updated with amendment to workforce options and clarification of workforce options and their definition based on advice received from Carla Edwards and Julia Shaw. Updated workforce options include by Michelle Lincoln on behalf of The Children's Hospital at Westmead
1.0	November 2019	PUG Champions & Medical Imaging leadership team	Updated to include feedback from George Mcivor. Changes made to Introduction and section 11 Staffing Model. Additional information included to all service model options sections (5-10) and Monitoring systems KPIs section 20.

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Table of Contents

1. Definitions

The following are definitions of terms, abbreviations and acronyms used in this document.

Term	Explanation
AAU	Acute Assessment Unit
CASB	Central Acute Services Building
CHW	The Children's Hospital at Westmead
CT	Computer Tomography
CTCA	Computer Tomography Coronary Angiography
ED	Emergency Department
EMR	Electronic Medical Record
ETR	Education, Training and Research
HOPE	Healthcare for Older People Earlier
HSMR	Hospital Standardized Mortality Ratio
ICT	Information and Communication Technology
ICU	Intensive Care Unit
IIMS	Incident Information Management System
IPU	Inpatient Unit
MRI	Magnetic Resonance Imaging
NIDU	NSW Infectious Diseases Unit
OPG	Orthopantomogram
PET	Positron Emission Tomography
PSSU	Paediatric Short Stay Unit
QARS	Quality Audit Reporting Systems
SCHN	Sydney Children's Hospitals Network
SIPU	Surgical Inpatient Unit
SLA	Service Level Agreement
SSU	Short Stay Unit
US	Ultrasound
WMH	Westmead Hospital (Adults)
WSLHD	Western Sydney Local Health District

2. Introduction

The Acute Imaging Service for the Westmead Central Acute Services Building (CASB) will be supported by the collaboration of Children's Hospital at Westmead (CHW) Imaging Department and the Westmead Radiology Department. Technologically advanced digital imaging services will be provided in multiple sites across the CASB and existing services to:

- Support patient care in the most appropriate clinical setting
- Provide timely imaging and a reliable manner and with the least amount of radiation possible

Workforce and resourcing planning utilises the information outlined from the Model of Care/Service and provides a guideline on identified roles and positions needed. The CASB Medical Imaging design as per the Business Case will deliver a total of 39 modalities (Includes 16 theatres) across Levels 1, 2, and 3.

Due to the complexity of the service, there are a number of operational options presented in this model of care for both Westmead Hospital and Children's Hospital at Westmead which are outlined below;

For the past 10 years, staffing enhancements has not aligned with the changing technology and increase in equipment within Radiology. The current level of service is at a similar level to that provided in 2009. This adversely impacts on Staffing Profiles in that prior to moving across to the CASB, there are existing unresolved issues within the current Deparmtent regarding:

1. **New modalities have been purchased or replaced without provision for adequate staffing; and,**
2. **Commensurate increases in staffing levels have not kept pace with increased referral volumes and increased complexity of imaging.**

Westmead Hospital

All options assume that there is no increase in across-the-board referrals on Day 1 CASB opening (contrary to the recent experience encountered at the opening of the new French's Forest Hospital).

Option 1: Current state delivering services from the current Westmead Hospital Radiology Department, but with no enhancement of current activity and resourcing for the CASB. In this Option, ED moves across to CASB Level 1. Current ED X-Ray Services will move to CASB Level 1; however CT Services to ED will continue to be provided from the Main Department.

Option 2: Resource enhancement to support current activity and safe and compliant clinical operations. This means there are 4 possible options, each offering an increased number of available services commensurate on provision of adequate staffing:

Option 2A: Services/modalities available in addition to existing Westmead Hospital services include the CASB Level 1 CT and CASB Mobile X-Ray service. In this option the patient holding bays on Level 1 will need to be operationalised simultaneously with the opening of CT, General X-ray and ultrasound services.

Option 2B: Services/modalities available in addition to existing Westmead Hospital services include the CASB Level 1 CT including patient hold bays, CASB Mobile X-Ray service, CASB Level 2 CT, and CASB Level 2 General X-ray. In this option the patient holding bays on Level 1 and 2 will be operational.

Option 2C: Services/modalities available in addition to existing Westmead Hospital services include the CASB Level 1 CT including patient hold bays, CASB Mobile X-Ray service, CASB Level 2 CT, CASB Level 2 General X-ray, CASB Level 2, MRI and CASB Level 1 Ultrasound service. In this option the patient holding bays will be operational.

Option 2D: Services/modalities available in addition to existing Westmead Hospital services include the CASB Level 1 CT including patient hold bays, CASB Mobile X-Ray service, CASB Level 2 CT, CASB Level 2 General X-ray, CASB Level 1 and 2 Ultrasound service, and CASB Level 3 Intraoperative MRI and CT. In this option the patient holding bays will be operational.

Option 3: Full operational model to support the long term vision based on the Business Case and Financial Impact statement, meaning all modalities delivered on Day 1 will be operationalised (this excludes shelled modalities).

The Project User Group's recommendation is that **Option 2C** for Westmead Hospital be considered for implementation to support the complex requirements of the Westmead Health Precinct Imaging Service.

If Option 2C is not selected, it is recognised that there is likely a staged model of funding for service provisions. In this scenario, **the PUG recommends sequential order from Option 2A through to option 3.**

A detailed description of each option is described in **Sections 4, 5, 6, and 7**.

A range of resource options have been developed for consideration. It is recommended that a detailed analysis of FTE requirements be conducted for each option.

This body of work will form part of the workforce strategy brief that is being developed for the Westmead Hospital Executive and WSLHD Chief Executive to assist the team with identifying a preferred option. It is expected that a detailed workforce plan will contain details on the total FTE, budget, positions and grades of all staff requirements.

Service Level Agreements to comply with current NSW State Law requirements re. Radiation Protection and compliance with EPA Regulations.

Children's Hospital at Westmead

Option 1: Current state delivering services from existing Radiology Department at The Children's Hospital at Westmead, with no enhancement of current activity and only Mobile X-Ray on request providing resourcing for the CASB

Option 2: Resource enhancement to support current activity and safe and compliant clinical operations that support the satellite CASB CHW Medical Imaging Department to operate. Services/modalities available in addition to existing CHW would be CASB CHW Medical Imaging Level 2 X-Ray, Ultrasound, CT and Mobile X-Ray service. On request support to the Level 3 CASB CHW PACU and Digital Operating Room.

Option 3: Full operational model to support the long term vision based on the Business Case and Financial Impact statement, meaning all modalities delivered on Day 1 will be operationalised (this excludes shelled modalities) Also X-Ray reporting.

NB. The shared modalities on Level 2 CASB CT and Level 3 Intraoperative MRI and CT are dependent on the WMH options supported: this may require further consultation once the option has been confirmed.

The Project User Group's recommendation is that **Option 2** for the Children's Hospital at Westmead be considered for implementation to support the complex requirements of the Westmead Health Precinct Imaging Service.

Both Hospitals recognise there are no formal commitments to fund new positions for this service model. Therefore, the workforce plan has been documented and presented to Hospital Executive for their

consideration. The final outcome will be determined at a later date by Hospital Executive and Chief Executives.

An overarching resourcing plan, to incorporate all areas of the required workforce, will be collated to identify all clinical and non-clinical positions required. This will be inclusive of the individual services required within specific units and a breakdown of department/discipline requirements. The overarching plan will be utilised as a negotiation tool for funding and resourcing approval whilst considering the Model of Care outlined.

3. Our Vision, Values, Purpose & Goals

OUR VISION

- Our vision is to provide world class, timely, and accurate diagnostic imaging support and interventional expertise utilising the lowest possible ionizing radiation exposure for the care of Westmead Precinct patients. The Acute Imaging Service also aspires to provide education, training and research to develop and sustain a highly professional and innovative workforce to improve care for patients and the community, now and into the future.

OUR VALUES

- Promote the provision of collaborative multi-disciplinary team based care
- Utilise the least possible ionising radiation dose, and appropriately resourcing non-ionising modalities whenever this will provide an alternate pathway to provide a result
- Use information and communications technology to connect the service with key partners
- Focus strongly on patient and staff education, training and research
- Provide a respectful, safe, efficient and rewarding working environment for staff

OUR PURPOSE

- Provide a safe and efficient quaternary care environment for paediatric, adolescent and young adult patients as part of an integrated service model
- Provide an imaging service team with the hallmark of capable care and professionalism
- Provide safe, high quality, timely, effective patient centred care and imaging support
- Provide timely diagnostic imaging and interventional expertise at the forefront of imaging practice and technology

OUR GOALS

- Deliver a service that is always patient centred
- Collaborative, innovative workforce inspired to provide the highest levels of technical expertise and professionalism
- Enable flexibility for new models of service delivery and new technologies to be implemented as they are developed including the use of new technologies and techniques

4. Service Model – Summary

4.1 Aim

This service model aims to achieve the following outcomes:

- Timely accessible imaging
- State of the art technical expertise
- Communication including digital image transfer and reporting to optimize patient care and flow
- Minimisation of ionizing radiation dose to patients – including cumulative dose from multiple examinations over time

4.2 Principles of Care

The CASB and Existing Medical Imaging Services will be underpinned by the following service model principles:

- Provision of patient and family centric services with optimal journeys for patients/carers and families.
- Separation of adult and paediatric flows with a focus on providing age appropriate environments and patient journeys for families
- Comprehensive emergency, inpatient and ambulatory services for the CASB
- Networked digital service with high speed intra-site and inter-site image transfer
- Timely service to assist with efficient patient flows
- Promote collaboration through multi-disciplinary team base care
- Delivery of safe, high quality and cost effective care, with particular reference to emergent models
- Including the efficient use of the best available technologies using lowest reasonably achievable radiation burden
- Employing the use of non- ionizing radiation imaging where practicable and effective
- A focus on strengthening of partnerships with referrers, stakeholders, consumers and the community in regard to service development, planning, delivery and evaluation including consultations inside and outside the multidisciplinary team

4.3 Operation of New Modalities and New Services (refer to Section 11)

- Commissioning of new modalities is dependent on staffing resourcing.
- Provision of new Services is dependent on commensurate staffing resources.
- Appendix 7 lists the minimum operational workforce requirement for major modalities.

4.4 Westmead Health Precinct Medical Imaging Service Model

The Westmead Health Precinct Medical Imaging Service Model is a model wherein existing paediatric and adults pathways remain largely the same. The primary changes are:

1) Travel to new modalities in new geographical locations; and,
2) Workflows coincide at a single shared end point for the shared modalities, upon which a decision must be made on how to schedule each hospitals' access to the shared modalities. Diagram 1 and 2 provides a high level summary of the medical imaging workflows and Westmead Precinct modalities.

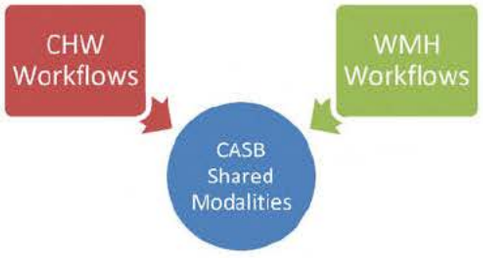

Diagram 1: *Diagram describing separate CHW and WMH workflows that coincide at the point of shared modalities within the CASB.*

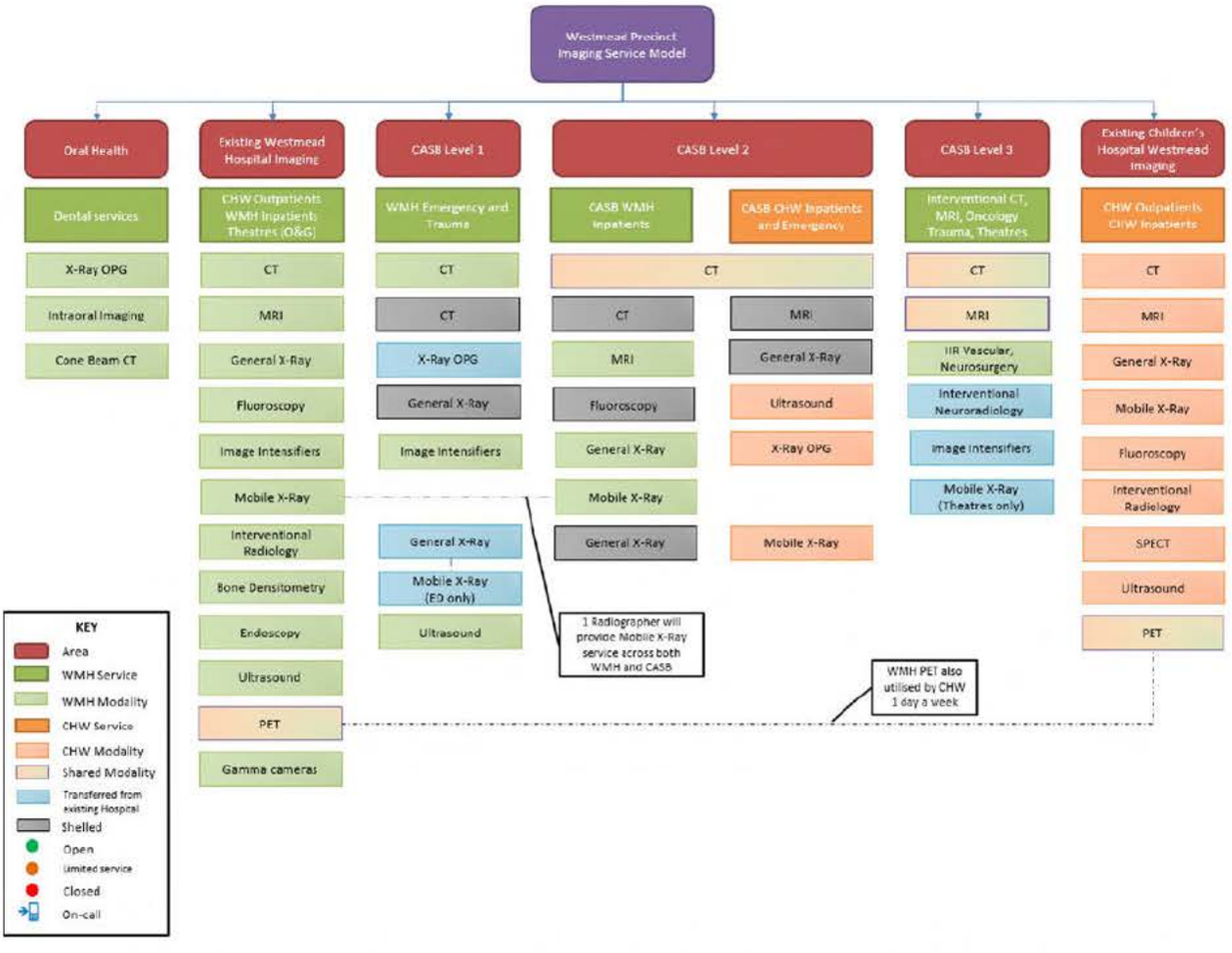

Diagram 2: *High level summary of all available Westmead Health Precinct Imaging Modalities including shelled modalities highlighted in grey. The full diagram is available in the Appendix.*

Table 1: Summary of existing modalities and their locations in Westmead Hospital

Level	Area or Department Name	Modality	Quantity
2	Radiology	CT	2
	Emergency Department	General X-Ray	2
	Radiology		4
	Emergency Department	X-Ray OPG	1
	Nuclear Medicine	Ultrasound	6
	Radiology	MRI	3
	Radiology	Fluoroscopy	1
3	Endoscopy		1
2	Interventional Radiology	Angiography	2
3	Operating Theatres	Interventional Neuro-Radiology	1
		Image Intensifiers	5
N/A	Mobile (Ward deployed)	Mobile X-Ray	9
		Mobile Ultrasound	TBC
1	Oral Health Imaging	X-Ray OPG	3
		Intra-oral	4
		Cone beam CT	2

Table 2: Summary of existing modalities and their locations in Children's Hospital at Westmead

Level	Area or Department	Modality	Quantity
2	Radiology	CT	1
2	Radiology	MRI	2
2	Radiology	General X-Ray	3
2	Radiology	Mobile X-Ray	1
2	Emergency Dept.		1
3	PICU		1
3	Grace NICU		1
2	Radiology	Ultrasound	1
2	Radiology	Fluoroscopy	2
2	Nuclear Medicine	Interventional Radiology	1
2	Nuclear Medicine	SPECT	1
		Ultrasound	0
NA	Westmead adults hospital, Level 1	PET	0

Table 3: Summary of new modalities in the Central Acute Services Building as per CASB Business Case.

			Commissioned		Shelled	
Level	**Area or Department Name**	**Modality**	**Number of modalities commissioned as per CASB Business Case**	**Organisation that accesses this modality and the quantity they access**	**Number of Modalities Shelled as per CASB Business Case**	**Organisation that accesses this modality and the quantity they access**
1	Medical Imaging Satellite in WMH Emergency Department	CT	1	WMH Adults	1	WMH Adults
		General X-Ray	2	WMH Adults	1	WMH Adults
		X-Ray & Cone CT (OPG)	1	WMH Adults	-	-
		Ultrasound	2	WMH Adults	-	-
		Mobile X-Ray	3	WMH Adults	-	-
		Image Intensifiers	New Service	WMH Adults	-	WMH Adults
2	Medical Imaging	MRI	1	WMH Adults	1	CHW
		CT	1	Shared between WMH and CHW	2	WMH Adults
		General X-Ray	1	WMH Adults	3	WMH Adults x2 – CHW x1
		X-Ray Cone CT (OPG)	1	CHW	-	-
		Fluroscopy	-	-	1	WMH Adults / when installed, CHW has indicated that may request use for urgent cases
		Mobile X-Ray	To be determined	WMH Adults	-	-
		Ultrasound	3	WHM Adults - 1 CHW - 2	2	WMH Adults
3	Operating Theatres	Integrated Imaging Room (Hybrid Theatre)	4	WMH Adults - 3 CHW - 1	-	-
		Digital Operating Room (1 + 4 II's, 4 in CASB) everything that is not IIR	16	WMH Adults - 13 CHW - 3	-	-
		Interventional Lab (Cardiac Cath lab)	5	Adults	1	Adults
		Interventional Neuroradiology	1	Adults	-	-
		Intraoperative MRI	1	Shared between WMH and CHW	-	-
		Intraoperative CT	1	Shared between WMH and CHW	-	-

The following table compares the new modalities being commissioned in the CASB against the service delivery options that may be operationalised.

Table 4: Description of resourcing options and the modalities that are open and closed with each option

						Option 2: Resource enhancement to support current activity and safe and compliant clinical operations											
						OPTION 1: No enhancement of current activity or resourcing for the CASB		OPTION 2A		OPTION 2B		OPTION 2C		OPTION 2D		OPTION 3: Full operational model to support the long term vision	
						In hours	Out of hours	In hours	Out of hours	In hours	Out of hours	In hours	Out of hours	In hours	Out of hours	In hours	Out of hours
						This option is for no enhancement		This option is to open the Level 1 CT and Mobile X-Ray Services in the CASB. Patient holding bays on Level 1 will be operationalised.		This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT, and Level 2 General X-Ray in the CASB. Patient Holding bays on Level 1 & 2 will be operationalised		This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT, Level 2 General X-Ray, Level 2 MRI, and Level 1 Ultrasound in the CASB. Patient Holding bays on Level 1 & 2 will be operationalised		This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT, Level 2 General X-Ray, Level 2 MRI, and Level 1 & 2 Ultrasound, and Level 3 CT and MRIs in the CASB.		This option is for enhancement to allow all new modalities in the CASB to operate	
Building	CASB Level	Area or Department Name	Modality	Number of Modalities be commissioned as per business case/ OR Existing Number of Modalities	Organisation that accesses this modality and the quantity they access												
Existing Westmead Hospital	2	Radiology	CT	2	Adults	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
		Emergency Department	General X-Ray	2	Adults	Transferred (T/F) to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB
		Radiology		4	Adults	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
		Emergency Department	X-Ray OPG	1	Adults	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
		Nuclear Medicine	Ultrasound	6	Adults	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call
		Radiology	MRI	3	Adults	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call
		Radiology	Fluoroscopy	1	Adults	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed
	3	Endoscopy		1	Adults	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed
	2	Interventional Radiology	Angiography	2	Adults	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call
					Adults	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call
	3	Operating Theatres	Interventional Neuro-Radiology	1	Adults	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB
			Image Intensifiers	1	Adults	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
			Image Intensifiers	4	Adults	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB	T/F to CASB
	N/A	Mobile (Ward deployed)	Mobile X-Ray	9	Adults	Limited	Limited	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
			Mobile Ultrasound		Adults	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call
	1	Oral Health Imaging	X-Ray OPG	3	Adults	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed
			Intra-oral	4	Adults	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed
			Cone beam CT	2	Adults	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed

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Building	CASB Level	Area or Department Name	Modality	Number of Modalities be commissioned as per business case/ OR Existing Number of Modalities	Organisation that accesses this modality and the quantity they access	OPTION 1: No enhancement of current activity or resourcing for the CASB		Option 2: Resource enhancement to support current activity and safe and compliant clinical operations								OPTION 3: Full operational model to support the long term vision	
						In hours	Out of hours	OPTION 2A		OPTION 2B		OPTION 2C		OPTION 2D			
								In hours	Out of hours	In hours	Out of hours	In hours	Out of hours	In hours	Out of hours	In hours	Out of hours
						This option is for no enhancement		This option is to open the Level 1 CT and Mobile X-Ray Services in the CASB. Patient holding bays on Level 1 will be operationalised.		This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT, and Level 2 General X-Ray in the CASB. Patient Holding bays on Level 1 & 2 will be operationalised		This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT, Level 2 General X-Ray, Level 2 MRI, and Level 1 Ultrasound in the CASB. Patient Holding bays on Level 1 & 2 will be operationalised		This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT, Level 2 General X-Ray, Level 2 MRI, and Level 1 & 2 Ultrasound, and Level 3 CT and MRIs in the CASB.		This option is for enhancement to allow all new modalities in the CASB to operate	
Central Acute Services Building	1	Medical Imaging Satellite in WMH Emergency Department	CT	1	Adults	Closed	Closed	Open	Open	Open	Closed	Open	Closed	Open	Closed	Open	Closed
			General X-Ray	1	Adults	Open	Limited	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
			General X-Ray and Cone Beam CT (OPG) co-located in 1 room	1	Adults	Open	Limited	Open	Limited	Open	Limited	Open	Limited	Open	Limited	Open	Limited
			Ultrasound	2	Adults - 2	Closed	Closed	Closed	Closed	Closed	Closed	Open	Closed	Open	Closed	Open	Closed
			Mobile X-Ray			Open	Limited	Open	Limited	Open	Limited	Open	Limited	Open	Limited	Open	Limited
			Image Intensifiers	0	Adults	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Closed
	2	Medical Imaging	MRI	1	Adults	Closed	Closed	Closed	Closed	Closed	Closed	Open	Limited	Open	Limited	Open	Limited
			CT	1	Shared between WMH and CHW	Closed	Closed	Closed	Closed	Open	Closed	Open	Open	Open	Closed	Open	Closed
			General X-Ray	1	Adults	Closed	Closed	Closed	Closed	Open	Limited	Open	Limited	Open	Limited	Open	Limited
			Mobile X-Ray			Limited	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Open	Limited
			Ultrasound	1	Adults - 1	Closed	Closed	Closed	Closed	Closed	Closed	Open	Limited	Open	Limited	Open	Limited
	3	Operating Theatres	Integrated Imaging Room (Hybrid) - 2 x vascular, 1 x hybrid theatre	3	Adults - 3 Children's - 1	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Limited
			Digital Operating Room (1 + 4 II's, 4 in CASB) everything that is not IIR	16	Adults - 13 Children's - 3	Open	Limited	Open	Limited	Open	Limited	Open	Limited	Open	Limited	Open	Limited
			Interventional Lab (Cardiac Cath lab)	5	Adults	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited On-call	Open	Limited
			Interventional Neuroradiology	1	Adults	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Limited
			Intraoperative MRI	1	Shared between WMH and CHW	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Limited	Open	Limited

Building	CASB Level	Area or Department Name	Modality	Number of Modalities be commissioned as per business case/ OR Existing Number of Modalities	Organisation that accesses this modality and the quantity they access	OPTION 1: No enhancement of current activity or resourcing for the CASB		Option 2: Resource enhancement to support current activity and safe and compliant clinical operations								OPTION 3: Full operational model to support the long term vision	
						In hours	Out of hours	OPTION 2A		OPTION 2B		OPTION 2C		OPTION 2D		In hours	Out of hours
								In hours	Out of hours	In hours	Out of hours	In hours	Out of hours	In hours	Out of hours		
						This option is for no enhancement		This option is to open the Level 1 CT and Mobile X-Ray Services in the CASB. Patient holding bays on Level 1 will be operationalised.		This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT, and Level 2 General X-Ray in the CASB. Patient Holding bays on Level 1 & 2 will be operationalised		This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT, Level 2 General X-Ray, Level 2 MRI, and Level 1 Ultrasound in the CASB. Patient Holding bays on Level 1 & 2 will be operationalised		This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT, Level 2 General X-Ray, Level 2 MRI, and Level 1 & 2 Ultrasound, and Level 3 CT and MRIs in the CASB.		This option is for enhancement to allow all new modalities in the CASB to operate	
			Intraoperative CT	1	Shared between WMH and CHW	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Limited	Open	Limited

5 Service Model Option 1: No Enhancement of Activity and Resourcing

5.1 Summary of Option 1 and what it aims to deliver

Service Model Option 1 is indicative of what Medical Imaging services can be provided if no enhancement of current activity or resourcing is provided for Day 1 of CASB operations.

In this Option, ED moves across to CASB Level 1. Current ED X-Ray Services will move to CASB Level 1; however CT Services to ED will continue to be provided from the Main Department.

5.2 Underlying Assumptions of Option 1 - In Hours

Option 1 pertains to no enhancement of current activity and resourcing. With the sole exception of ED X-Ray Services, the existing workforce will continue operations in the existing departments for both Westmead Hospital and Children's Hospital at Westmead.

5.3 Operations Deliverable as per Option 1

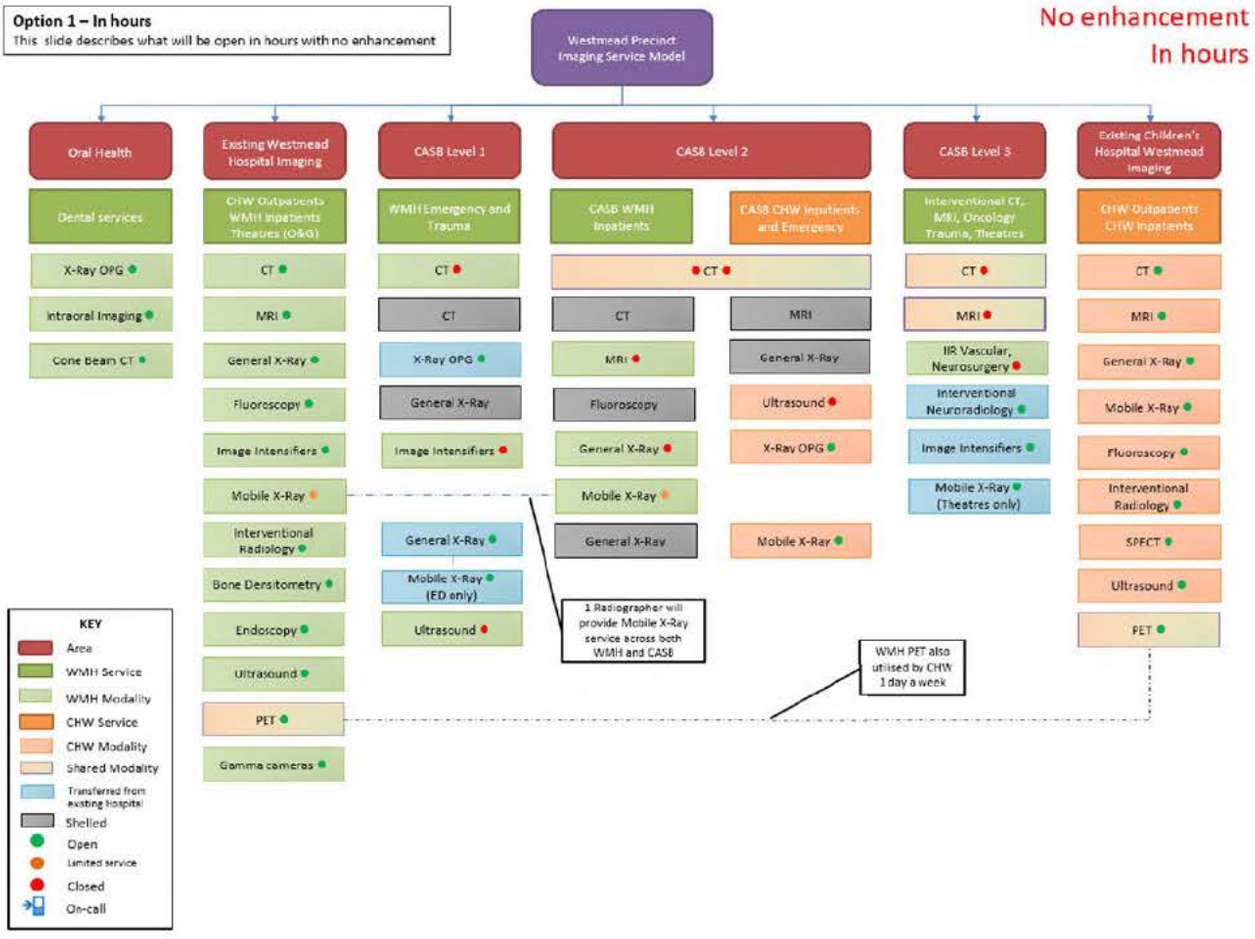


Diagram 3: High level summary of all available Westmead Health Precinct Imaging Modalities during hours, where green dots and red dots denote operational modalities under Option 1 of the resourcing plan. The full diagram is available in the Appendix.

5.4 Underlying Assumptions to Option 1 - After Hours

Current ED X-Ray Services will move to CASB Level 1; however CT Services to ED will continue to be provided from the Main Department. The two Radiographers providing the X-Ray Service will also provide ALS, Mobile and Theatre cover after-hours across both sites.

If no workforce enhancement is provided, Option 1 is the only service provision available.

No increase in operational expenses including employee related expenses and activity funding are required for Option 1.

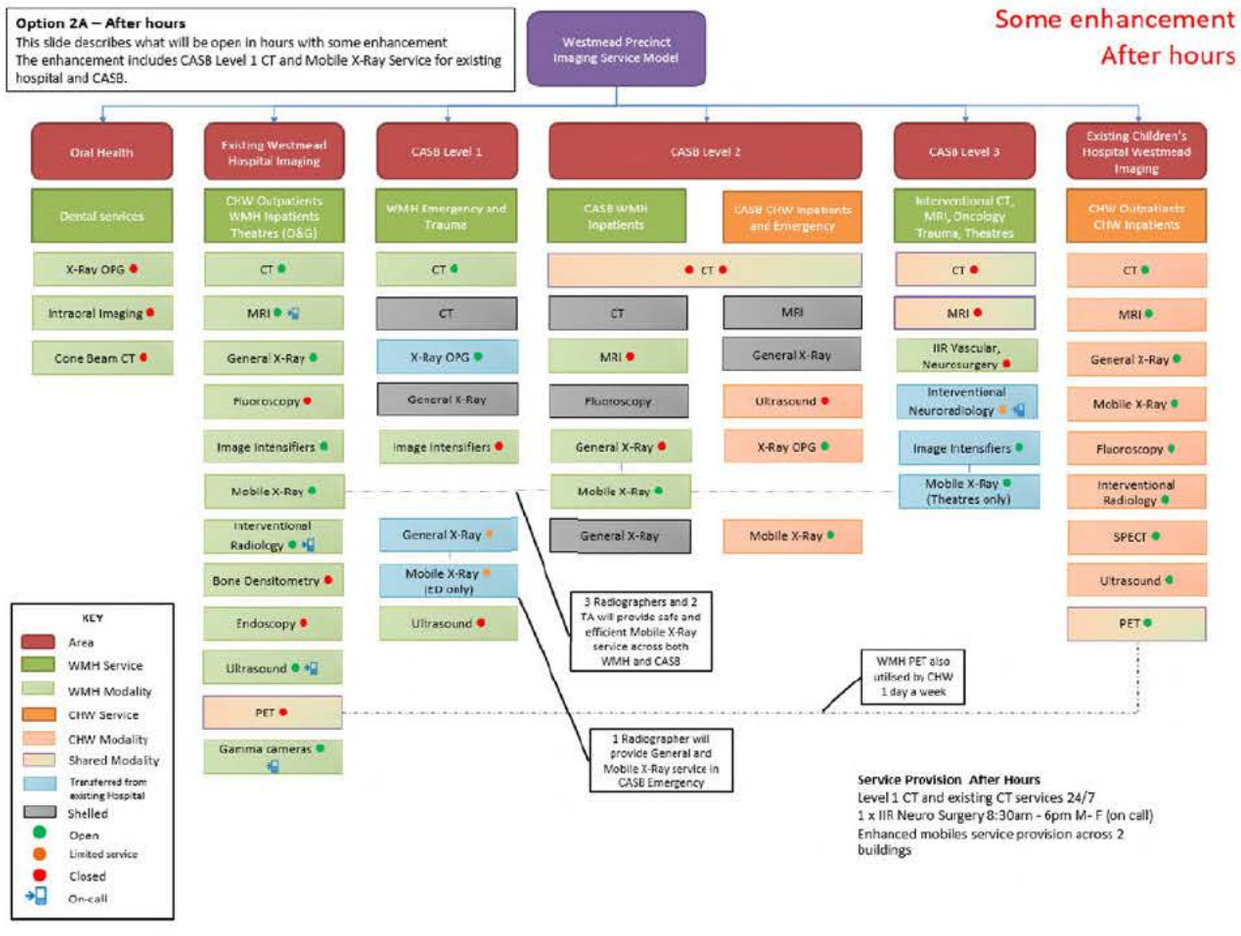


Diagram 4: High level summary of all available Westmead Health Precinct Imaging Modalities after hours, where tgreen dots and red dots denote operational modalities under Option 1 of the resourcing plan. The full diagram is available in the Appendix.

5.5 Risks, Issues, and Other Factors for Consideration

If Option 1 is selected:

(a) The current Radiology Department will provide CT imaging for all ED patients i.e. patients will be transferred across to the existing Department for CT imaging. As the Level 2 shared CT will remain unstaffed and therefore closed, this will create a backwards patient flow and potentially prevent trauma resuscitation patients from accessing the CT;

(b) After-Hours: In addition to above, the two after-hours ED Radiographers will concurrently provide mobile X-Ray Services across both sites for ALS Calls, Theatre and Wards.

There is a strong likelihood of competition between referral bases for limited imaging availability. Depending on the prioritised / triaged clinical histories, Stroke, ICU and ED patients will be imaged first, followed by inpatient referrals.

All patients requiring CT will be transferred to the current department for imaging: the agreed principle of no inpatients returning to ED would not permit a single scanner to be operational. No additional Sonographers or Interventional Radiographers will be available. This will impact clinical services that are planning to deliver interventional services within the CASB.

The risks of this option to hospital operations and other clinical services are listed in the following table:

Department	Description of risk
Impact on patient flow	Almost certain delays to patient journeys throughout CASB to WMH due to geographical distance and potential increase in patient stay. Inpatients within CASB requiring X-Ray, CT, MRI, Fluoroscopy and Angiography will be required to return to Level 2, existing WMH Imaging/Radiology During downtime and routine maintenance all CASB inpatients will need to return to WMH
Risk to patients	Increased likelihood of morbidity and mortality if no ALS services provided. Potential delays in performing imaging requests due to increased geographical distance
ALS Coverage	Radiographer ALS coverage is required for CASB independent to the existing WMH. This is because 1 Radiographer responds to all mobile X-Ray ALS calls in addition to general radiography duties after hours. It is not sustainable to cover CASB, WMH, and ALS alone
Emergency Department	All CASB patients requiring U/S, CT, MRI, Angiography or Fluoroscopy referral will be required to be transferred to the existing Radiology department, Level 2, WMH. No Plaster Room Radiographer to utilise the Image Intensifier. Patients with simple displaced fractures not requiring surgical intervention will be transferred to theatres instead of using plaster room.
Intensive Care Services	ICU patients requiring any imaging with the exception of mobile X-Rays must return to existing WMH Imaging: this has the potential to cause delayed imaging
Trauma	All CASB trauma inpatients requiring CT will be required to be transferred to WMH Imaging/Radiology. CASB Level 3 intraoperative CT or MRI services or Interventional radiology not available
Theatres	1 x Radiographer will be available for INR; there will be no services for other IIR (hybrid) activity, nor will CASB Level 3 Interventional CT and MRI's be available. After-hours cover for INR and Main Department IR cover: 1x Radiographer shared by 2x Services. Any other Interventional Radiographer activity constitutes a New Service. 4 x II's can be operational as it is existing service. Deficit of 1 Image Intensifier as 1 remains in existing theatres.
Cardiology	No Cardiac MRI or CTCA service available to Cardiology patients
Mobile service	Mobile services will be limited to current service due to distance considerations. This will cause a delay in radiographer attendance to ALS.
Inpatients	All CASB inpatients must transfer to existing imaging/Radiology department for mobile services.
NIDU	Mobile services will be limited to current service in hours due to distance considerations. Delayed mobile imaging services can be provided after hours
NICU	Mobile services will be limited to current service in hours due to distance considerations. Delayed mobile imaging services can be provided after hours
Orderlies	Almost certain inability to transfer patients to the main department unless there is an enhancement of orderly services
ICT	Integration of multiple ICT systems including RIS PACS, Surginet, CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates

Assumptions	Current service provision levels for ED 24/7, General X-Ray, Mobiles CT Service provided from current Main Department 1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call) Note: reduced service after hours 6pm - 8am (Inc. Operating Suites) MRI, Interventional On Call & CT is 24/7. 1x IR Radiographer servicing INR and IR

6 Service Model Option 2A: Resourcing Enhancement to Support Current Activity and Safe Clinical Operations

6.1 Summary of Option 2A and What It Aims to Deliver

Service Model Option 2 is indicative of what Medical Imaging services can be provided if resourcing enhancement is provided to support activity currently available in the Main Department that is transferred to the Adult CASB. This means some modalities will open in the CASB safely thus avoiding some risks to staff, patients, and patient flow and access navigation.

Option 2A provides for transfer of existing Adult ED Radiology Services to CASB Level 1:

1. Level 1 CASB ED CT;
2. Provision of a Plaster Room on CASB Level 1 is a New Service: depending on workload, this may require employment of an additional Radiographer
3. Level 1 CASB Plain X-Ray Rooms: the Radiographers will provide ED X-Ray Services and also supply Mobile X-Ray services to the entire hospital
4. 2x CT's and 3x MRI's will remain functional in the current Main Department (2x MR's are current funded; the 3rd 1.5T MRI is past end off life however utilisation of this MRI provides necessary imaging for cardiac cases and patients with prostheses).
5. CHW to provide Radiographers for utilising the Level 2 CASB CT for Paediatric ED Referrals both in hours and after hours

6.2 Underlying Assumptions of Option 2A - In Hours

The existing workforce will continue operations in the existing departments for both Westmead Hospital and Children's Hospital at Westmead. This option assumes the modalities in locations most important will be operational.

The Decentralised Imaging Services Model will no longer be co-located introducing new inefficiencies to service provision.

There will be enhancement of staffing provision to ensure that the opening of the third CT in CASB Level 1 is adequately staffed with RN's, Radiographers, Clerical Staff, Registrars and Radiologists to report workload without adversely affecting provision of CT Services in the current Main Department.

6.3 Operations Deliverable as per Option 2A

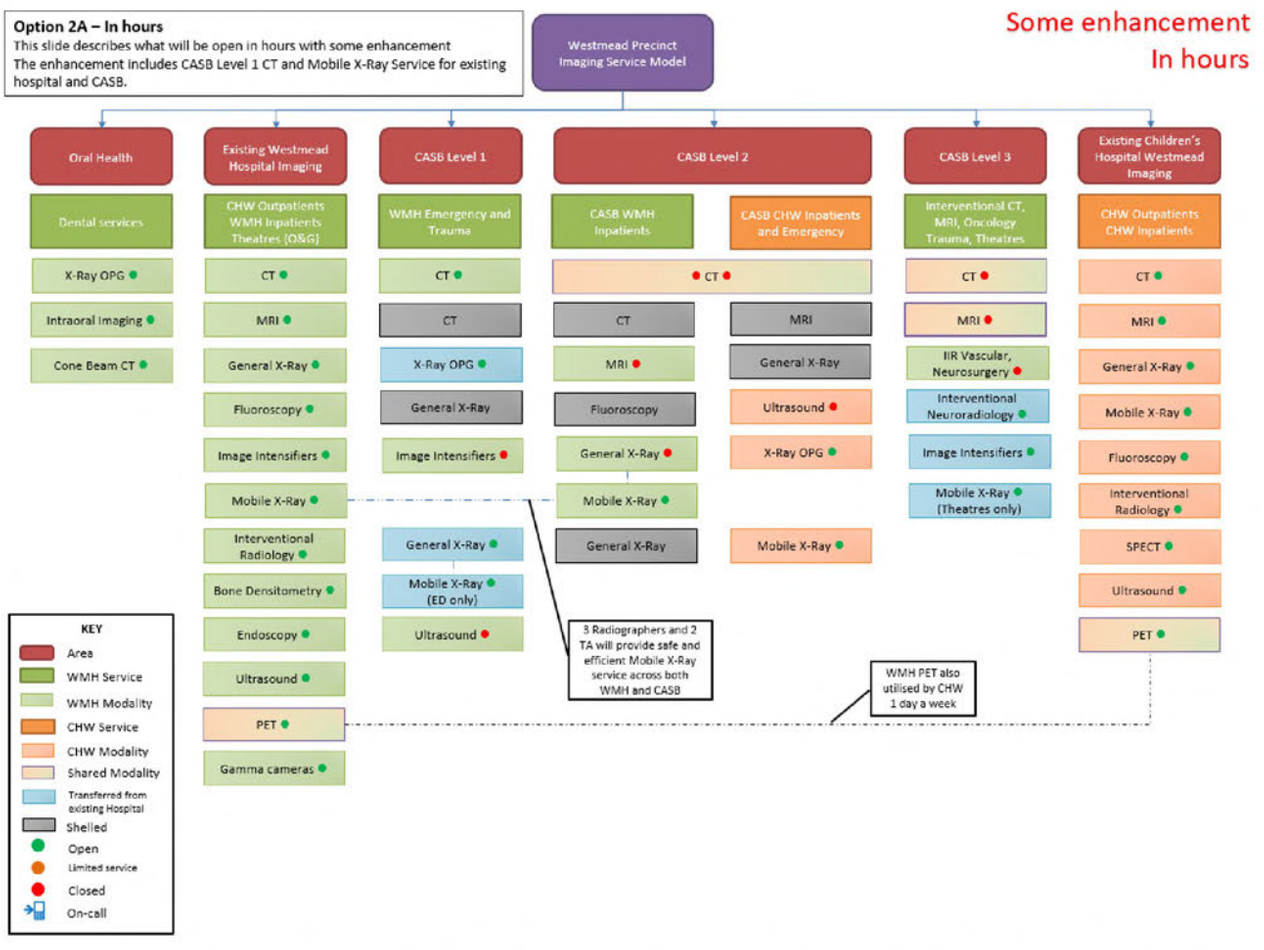


Diagram 5: High level summary of all available Westmead Precinct Imaging Modalities in hours, where green dots and red dots denote operational modalities under Option 2 of the resourcing plan. The full diagram is available in the Appendix.

6.4 Underlying Assumption Option 2A - After Hours

This option assumes that though an assumption has been made that clinical activity will not increase in Option 2, some increase in operational expenses including employee related expenses and activity funding are required due to the increased number of imaging satellites across the precinct and the impact due to distance and logistics.

Successful operation is dependent on employment of sufficient Radiology Registrars, Radiographers and RN's to run two after-hours rosters for CT imaging. If no additional Radiology Registrars are employed, then only one CT can remain open across the hospital. This would void the commitment made to ED that the Level 1 CT was only to be utilised by ED-based referrals.

1x MRI will remain operational on an on-call basis in the current Main Department.

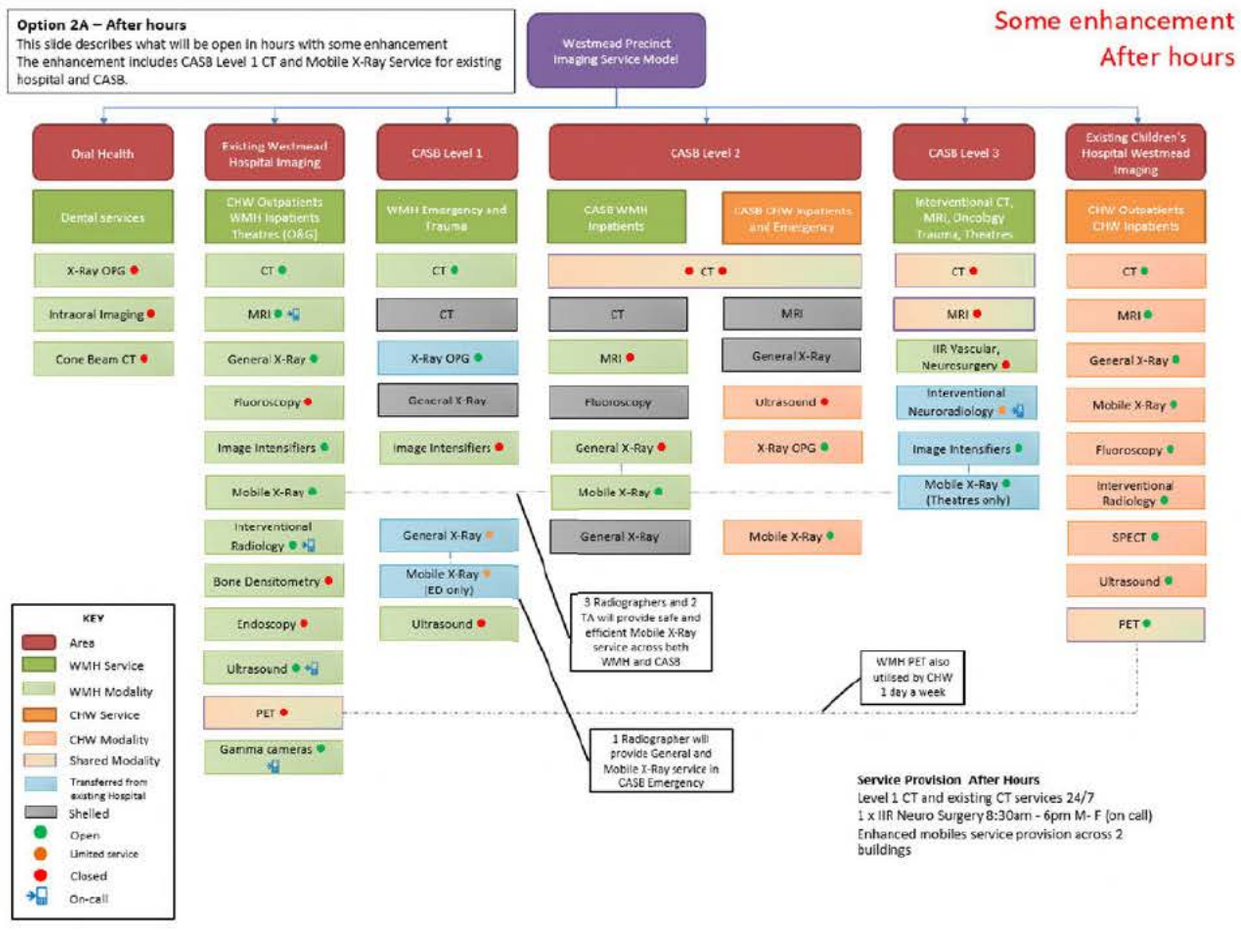


Diagram 6: High level summary of all available Westmead Health Precinct Imaging Modalities after hours, where green dots and red dots denote operational modalities under Option 2 of the resourcing plan. The full diagram is available in the Appendix.

6.5 Risks, Issues, and Other Factors for Consideration

The risks of this option to hospital operations and other clinical services are listed in the following table.

Department	Description of risk
Impact on patient flow	Almost certain delays to patient journeys throughout CASB to WMH due to geographical distance and potential increase in patient stay. Inpatients within CASB requiring X-Ray, MRI, Fluoroscopy and Angiography will be required to return to Level 2, existing WMH Imaging/Radiology During downtime and routine maintenance all CASB inpatients will need to return to WMH
Risk to patients	Potential delays in performing imaging requests due to increased geographical distance

Department	Description of risk
ALS Coverage	Risk mitigated
Emergency Department	All CASB patients requiring U/S, MRI, Angiography or Fluoroscopy referral will be required to be transferred to the existing Radiology department, Level 2, WMH. No Plaster Room Radiographer to utilise the Image Intensifier. An II is available in the ED Plaster Room as a Theatre Avoidance strategy for treatment of simple fractures. Patients with complex displaced fractures not requiring surgical intervention will be transferred to theatres instead of using the Plaster Room. During downtime and routine maintenance all CASB inpatients will need to return to WMH
Intensive Care Services	ICU patients requiring any imaging except for mobile X-Rays must return to existing WMH Imaging which may be delayed
Trauma	Trauma inpatients that present to helipad or main entrance in ED can access the Level 1 ED CT. Trauma patients from theatres cannot return to Level 1 ED CT for imaging, they must be transferred to WMH Radiology department as there will be no CASB Level 3 Intraoperative CT, MRI services or Interventional Radiology available Imaging has no capacity to look after a patient once their imaging is completed; Radiologists do not have Admitting Rights. In order to ensure that patients are not left in the Imaging Department after their imaging is completed, there needs to be an agreed established pathway whereby patients can be transferred to their ward after imaging is completed.
Theatres	1 x Radiographer will be available for INR; there will be no services for other IIR (hybrid) activity, nor will CASB Level 3 Interventional CT and MRI's be available. After-hours cover for INR and Main Department IR cover: 1x Radiographer shared by 2x Services. Any other Interventional Radiographer activity constitutes a New Service. 4 x II's can be operational as it is existing service. Deficit of 1 Image Intensifier as 1 remains in existing theatres.
Cardiology	No Cardiac MRI or CTCA service available to Cardiology patients
Mobile service	Mobile services will be limited to current service due to distance considerations. This will cause a delay in radiographer attendance to ALS.
Inpatients	All CASB inpatients must transfer to existing imaging/Radiology department for mobile services.
NIDU	Mobile services will be limited to current service in hours due to distance considerations. Delayed mobile imaging services can be provided after hours
NICU	Mobile services will be limited to current service in hours due to distance considerations. Delayed mobile imaging services can be provided after hours
Orderlies	Almost certain inability to transfer patients to the main department unless there is an enhancement of orderly services
ICT	Integration of multiple ICT systems including RIS/PACS, Surginet, CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates

Assumptions	Level 1 CT 24/7/365 and existing 1x CT inpatient services from 0800 – 2200 hrs 1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call) Enhanced mobiles service provision across 2 buildings ALS response available Nil inpatients to return to CASB Level 1 ED. 1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call). 1x IR Radiographer servicing INR & IR

7 Service Model Option 2B: Resourcing enhancement to support current activity and safe clinical operations

7.1 Summary of Option 2B and what it aims to deliver

This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT (normal hours), and Level 2 General X-Ray in the Adult CASB. The CASB Level 2 CT will not be operational after-hours.

7.2 Underlying Assumptions of Option 2B - In Hours

Although it is assumed that clinical activity will not increase in Option 2, some increase in operational expenses including employee related expenses and activity funding are required due to the increased number of imaging satellites across the precinct and the impact this has on distance and logistics.

There will be enhancement of staffing provision to ensure that the operation of 4x CT's and 3x MRI's are adequately staffed with RN's, Radiographers, Clerical Staff, Registrars and Radiologists to report workload without adversely affecting provision of CT Services in the current Main Department.

In order to provide CT Services, two (2) Nurses are required: one (1) for CT and one (1) for the Holding Bay area.

It is anticipated that there will be pressure to commence a formal CTCA Service during normal hours as per anticipated Cardiology requirements on CASB Level 2.

7.3 Operations Deliverable as per Option 2B

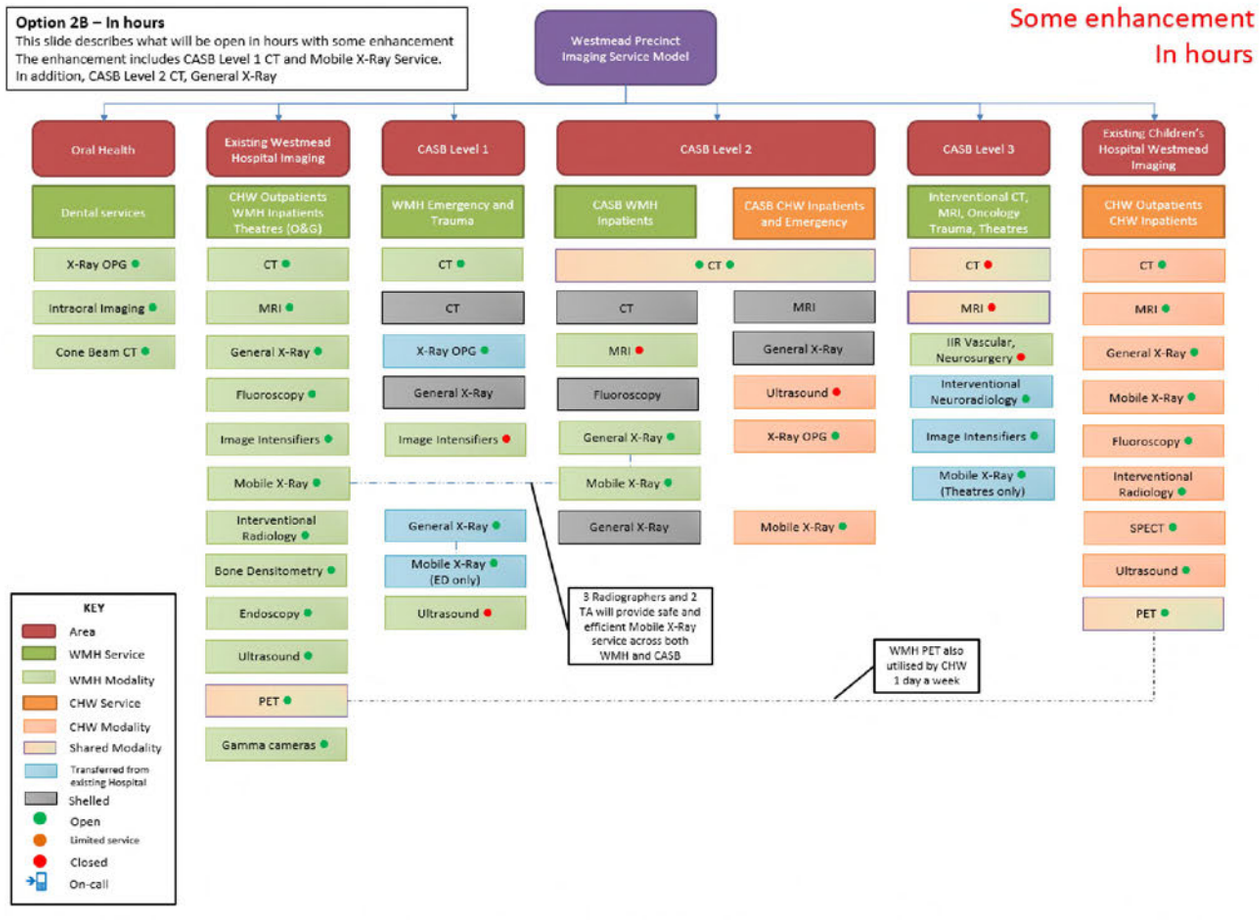


Diagram 7: High level summary of all available Westmead Health Precinct Imaging Modalities in hours, where green dots and red dots denote operational modalities under Option 2 of the resourcing plan. The full diagram is available in the Appendix.

Almost certain inability to transfer patients to the main department unless there is an enhancement of orderly services and ALS availability.

CHW to provide Radiographers for utilising the Level 2 CASB CT for CHW ED Referrals both in hours and after hours

Integration of multiple ICT systems including RIS PACS, Surginet, and CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates.

7.4 Underlying Assumption of Option 2B – After-Hours

- CASB Level 1 will be operational as per Option 2A above
- CASB Level 1 X-Ray Radiographers assist with providing services to Mobile examinations and ALS calls, a floating Radiographer will be available to assist with duties across the hospital
- CASB Level 2 closed 2200 – 0800 hrs next day and weekends / Public Holidays

There will be two (2) CT's functioning after-hours (Siemens CT Force in current main department and the Level 1 ED CT), Successful operation is dependent on employment of sufficient Radiology Registrars, Radiographers and RN's to run two after-hours rosters for CT imaging. If no additional Radiology Registrars are employed, then only one CT can remain open across the hospital. This would void the commitment made to ED that the Level 1 CT was only to be utilised by ED-based referrals. Additional provision of Radiologists required to report any increased workload.

1x MRI will remain operational on an on-call basis in the current Main Department.

CHW to provide Radiographers for utilising the Level 2 CASB CT for Paediatric ED Referrals both in hours and after hours.

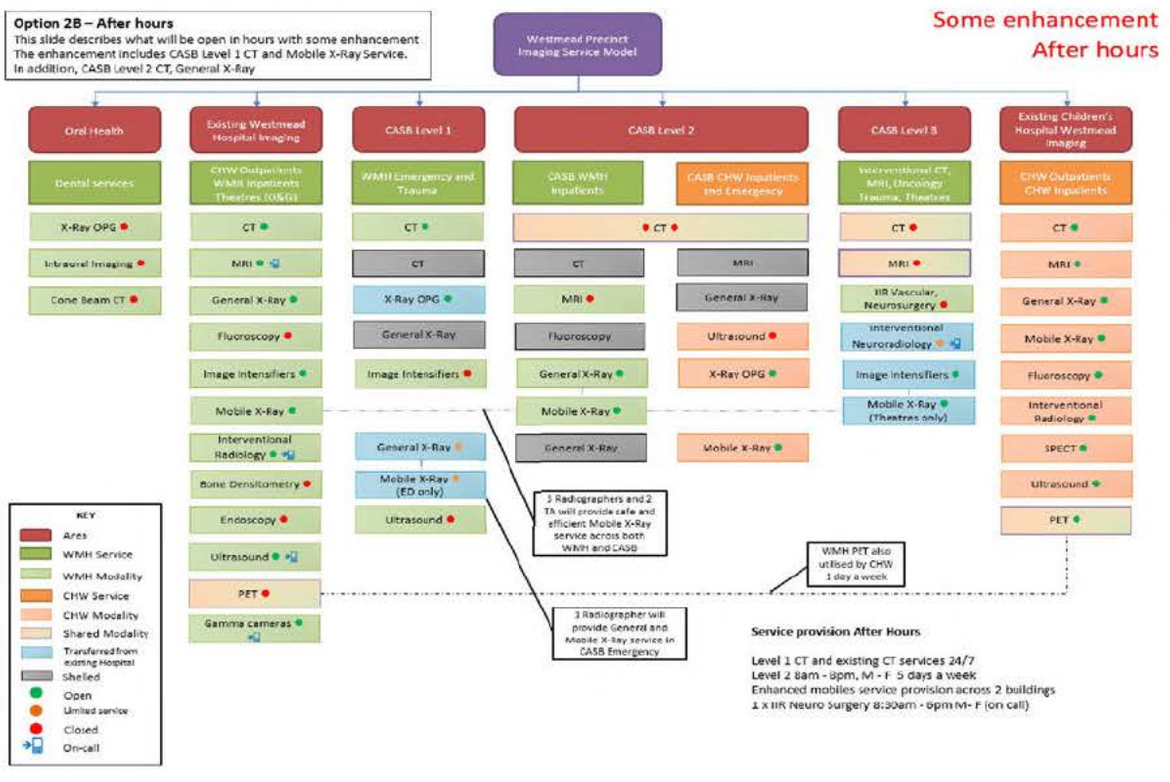


Diagram 8: High level summary of all available Westmead Health Precinct Imaging Modalities after hours, where green dots and red dots denote operational modalities under Option 2 of the resourcing plan. The full diagram is available in the Appendix.

7.5. Risks, Issues, and Other Factors for Consideration

The risks of this option to hospital operations and other clinical services are listed in the following table.

Department	Description of risk
Impact on patient flow	Almost certain delays to patient journeys throughout CASB to WMH due to geographical distance and potential increase in patient stay. Inpatients within CASB requiring X-Ray, MRI, Fluoroscopy and Angiography will be required to return to Level 2, existing WMH Imaging/Radiology During downtime and routine maintenance all CASB inpatients will need to return to WMH
Risk to patients	Potential delays in performing imaging requests due to increased geographical distance

Department	Description of risk
ALS Coverage	Risk mitigated
Emergency Department	All CASB patients requiring U/S, CT, MRI, Angiography or Fluoroscopy referral will be required to be transferred to the existing Radiology department, Level 2, WMH. No Plaster Room Radiographer to utilise the Image Intensifier. An II is available in the ED Plaster Room as a Theatre Avoidance strategy for treatment of simple fractures. Patients with complex displaced fractures not requiring surgical intervention will be transferred to theatres instead of using the Plaster Room. During downtime and routine maintenance all CASB inpatients will need to return to WMH
Intensive Care Services	ICU patients requiring any imaging except for mobile X-Rays must return to existing WMH Imaging which may be delayed
Trauma	Trauma inpatients that present to helipad or main entrance in ED can access the Level 1 ED CT. Trauma patients from theatres cannot return to Level 1 ED CT for imaging, they must be transferred to Level 2 CT (in hours) or WMH Radiology department afterhours as there will be no CASB Level 3 Intraoperative CT, MRI services or Interventional Radiology available Imaging has no capacity to look after a patient once their imaging is completed; Radiologists do not have Admitting Rights. In order to ensure that patients are not left in the Imaging Department after their imaging is completed, there needs to be an agreed established pathway whereby patients can be transferred to their ward after imaging is completed.
Theatres	1 x Radiographer will be available for INR; there will be no services for other IIR (hybrid) activity, nor will CASB Level 3 Interventional CT and MRI's be available. After-hours cover for INR and Main Department IR cover: 1x Radiographer shared by 2x Services. Any other Interventional Radiographer activity constitutes a New Service. 4 x II's can be operational, as it is existing service. Deficit of 1 Image Intensifier as 1 remains in existing theatres.
Cardiology	No Cardiac MRI or CTCA service available to Cardiology patients
Mobile service	Mobile services will be limited to current service due to distance considerations. This will cause a delay in radiographer attendance to ALS.
Inpatients	All CASB inpatients must transfer to existing imaging/Radiology department for mobile services and to Main Department for all other afterhours imaging
NIDU	Mobile services will be limited to current service in hours due to distance considerations. Delayed mobile imaging services can be provided after hours
NICU	Mobile services will be limited to current service in hours due to distance considerations. Delayed mobile imaging services can be provided after hours
Orderlies	Almost certain inability to transfer patients to the main department unless there is an enhancement of orderly services
ICT	Integration of multiple ICT systems including RIS/PACS, Surginet, CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates

Assumptions	Level 1 CT and existing ED X-Ray / Mobile Service Level 2 8am - 8pm, M - F 5 days a week Enhanced mobiles service provision across 2 buildings 1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call). 1x IR Radiographer servicing INR & IR ALS response Nil inpatients to return to CASB Level 1 ED

8 Service Model Option 2C: Resourcing Enhancement to Support Current Activity and Safe Clinical Operations

8.1 Summary of Option 2C and what it aims to deliver

This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT (0800 – 2000 hrs Monday – Friday), Level 2 General X-Ray, Level 2 MRI, and Level 1 Ultrasound in the CASB.

8.2 Underlying assumptions of Option 2C – In Hours

Although it is assumed that clinical activity will not increase in Option 2, some increase in operational expenses including employee related expenses and activity funding are required due to the increased number of imaging satellites across the precinct and the impact this has on distance and logistics.

During normal hours, there will be 4x CT's and 4x MRI's functioning across the adult Hospital. Successful operation is dependent on employment of sufficient Radiology Registrars, Radiographers and RN's to run these additional rosters. If no additional Radiology Registrars are employed, then only one CT can remain open across the hospital.

In order to provide CT Services, two (2) Nurses are required: one (1) for CT and one (1) for the Holding Bay area.

An integration of multiple ICT systems including RIS PACS, Surginet, and CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates.

Inability to transfer patients to the main department unless there is an enhancement of orderly services.

8.3 Operations deliverable as per Option 2C

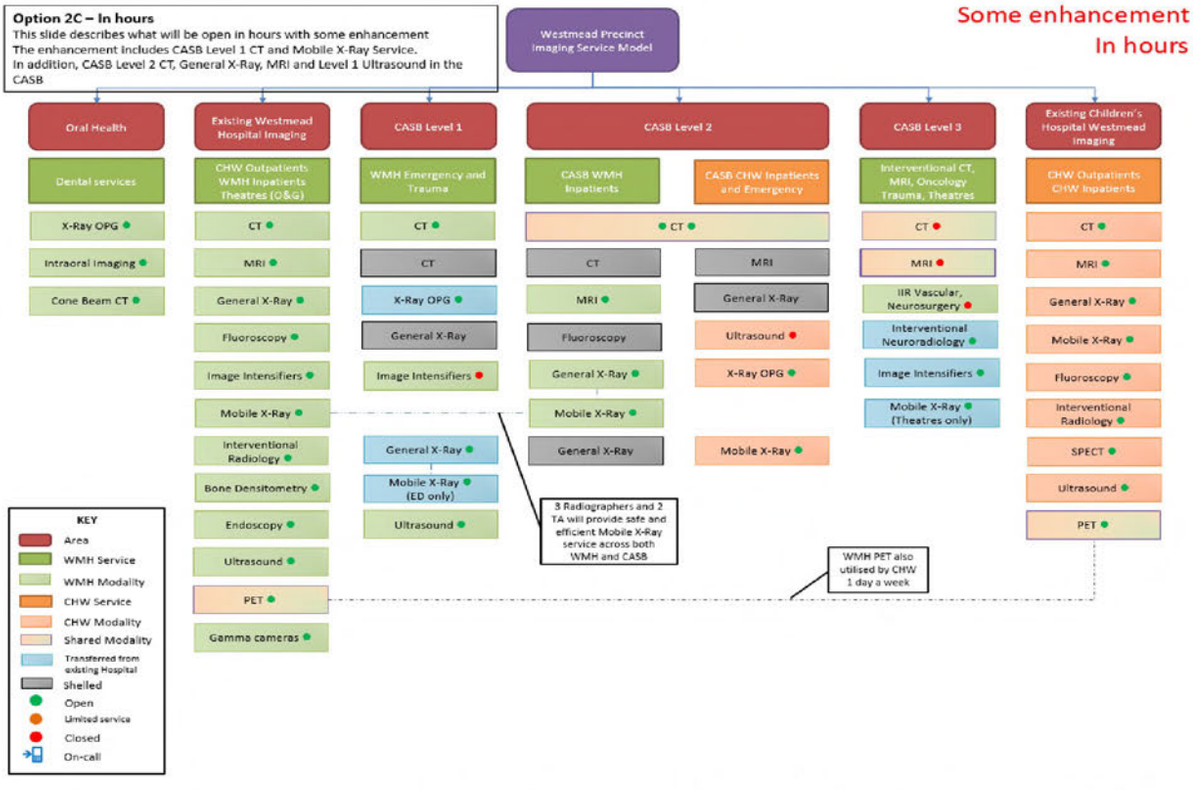


Diagram 9: High level summary of all available Westmead Health Precinct Imaging Modalities in hours, where green dots and red dots denote operational modalities under Option 2 of the resourcing plan. The full diagram is available in the Appendix.

8.4 Underlying Assumption of Option 2C – After-Hours

- There will be two (2) CT's functioning after-hours (Siemens CT Force in current main department and the Level 1 ED CT). As there will be no operational CASB Level 2 CT in this after-hours scenario, all CASB inpatients will be transferred to the Main Radiology Department for after-hours imaging.
- Successful operation is dependent on employment of sufficient Radiology Registrars, Radiographers and RN's to run two, or possibly three after-hours rosters for CT imaging. If no additional Radiology Registrars are employed, then only one CT can remain open across the hospital. This would void the commitment made to ED that the Level 1 CT was only to be utilised by ED-based referrals. Additional provision of Radiologists required to report any increased workload.
- 1x MRI will remain operational on an on-call basis in the current Main Department.

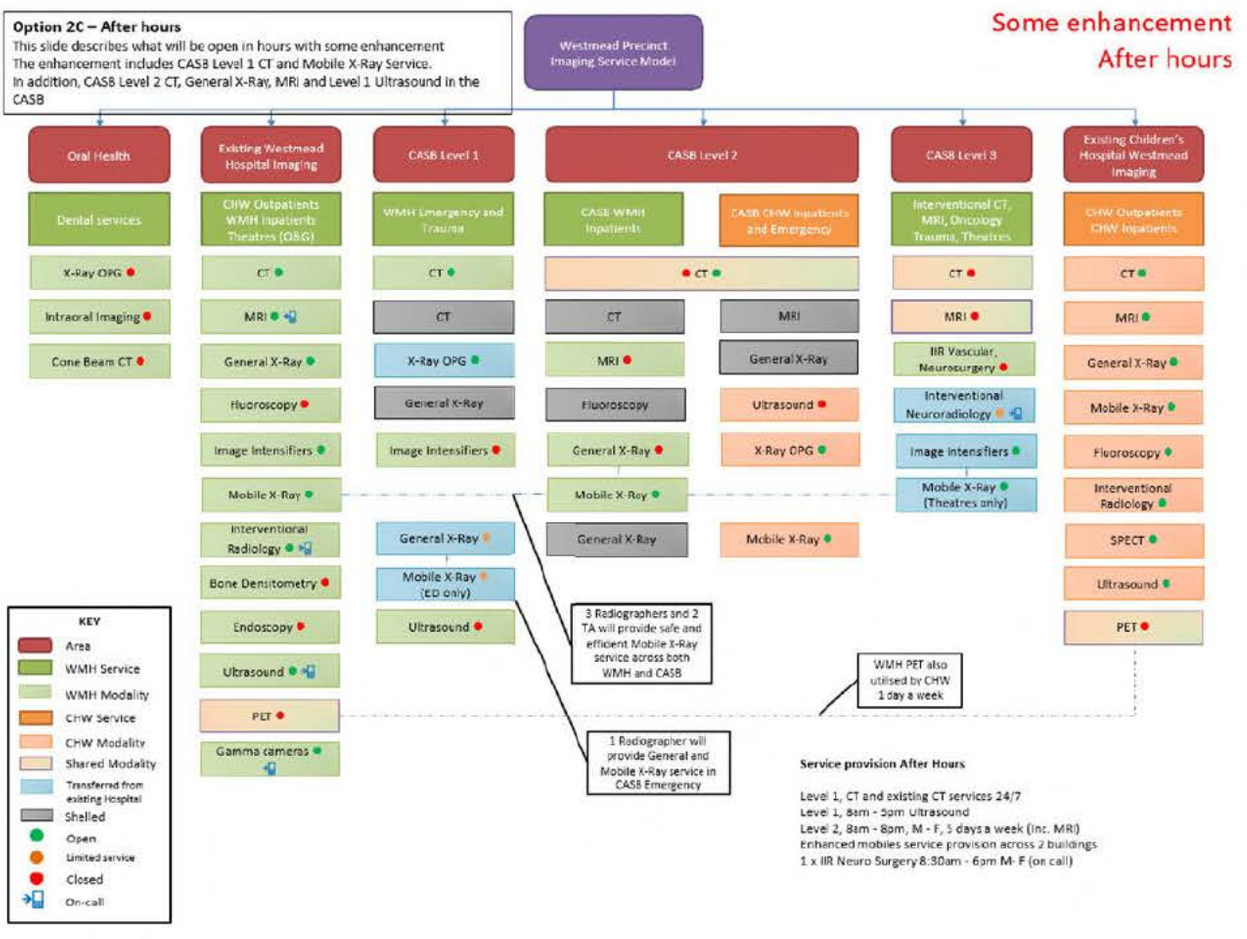


Diagram 10: High level summary of all available Westmead Health Precinct Imaging Modalities after hours, where green dots and red dots denote operational modalities under Option 2 of the resourcing plan. The full diagram is available in the Appendix.

8.5 Risks, Issues, and Other Factors for Consideration

A two year lead time is required for Interventional Radiographers from the point at which they are on boarded as an employee.

The risks of this option to hospital operations and other clinical services are listed in the following table:

Department	Description of risk
Impact on patient flow	Potential delays to patient journeys throughout CASB to WMH due to geographical distance and potential increase in patient stay. Inpatients within CASB requiring X-Ray, MRI, Fluoroscopy and Angiography will be required to return to Level 2, existing WMH Imaging/Radiology During downtime and routine maintenance all CASB inpatients will need to return to WMH
Risk to patients	Reduction in delays performing imaging requests due to increased geographical distance with the exception of Fluoroscopy and Angiography services
ALS Coverage	Risk mitigated
Emergency Department	All CASB patients requiring MRI, Angiography or Fluoroscopy referral will be required to be transferred to the existing Radiology department, Level 2, WMH. No Plaster Room Radiographer to utilise the Image Intensifier. An II is available in the ED Plaster Room as a Theatre Avoidance strategy for treatment of simple fractures. Patients with complex displaced fractures not requiring surgical intervention will be transferred to theatres instead of using the Plaster Room. During downtime and routine maintenance all CASB inpatients will need to return to WMH
Intensive Care Services	ICU patients requiring any imaging except for mobile X-Rays must return to existing WMH Imaging which may be delayed
Trauma	Trauma inpatients that present to helipad or main entrance in ED can access the Level 1 ED CT. Trauma patients from theatres cannot return to Level 1 ED CT for imaging, they must be transferred to CASB Level 2 CT (normal hours) or to the Main Department if the CASB Level 2 CT is closed as there will be no CASB Level 3 Intraoperative CT, MRI services or Interventional Radiology available Imaging has no capacity to look after a patient once their imaging is completed; Radiologists do not have Admitting Rights. In order to ensure that patients are not left in the Imaging Department after their imaging is completed, there needs to be an agreed established pathway whereby patients can be transferred to their ward after imaging is completed.
Theatres	1 x Radiographer will be available for INR; there will be no services for other IIR (hybrid) activity, nor will CASB Level 3 Interventional CT and MRI's be available. After-hours cover for INR and Main Department IR cover: 1x Radiographer shared by 2x Services. Any other Interventional Radiographer activity constitutes a New Service. 4 x II's can be operational, as it is existing service. Deficit of 1 Image Intensifier as 1 remains in existing theatres.
Cardiology	As there will be internal competition for CASB Level 2 CT and MRI, Cardiology will share availability with other competing referrers. i.e. Cardiac CTCA and MRI services can be provided in a limited capacity
Mobile service	Risk mitigated
Inpatients	All CASB inpatients must transfer to existing imaging/Radiology department for mobile services and to Main Department for all other afterhours imaging
NIDU	Mobile services will be limited to current service in hours due to distance considerations. Delayed mobile imaging services can be provided after hours
NICU	As per current protocol return CHW other than NICU mobile x-ray
Orderlies	Almost certain inability to transfer patients to the main department unless there is an enhancement of orderly services
ICT	Integration of multiple ICT systems including RIS/PACS, Surginet, CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates

Department	Description of risk
Assumptions	Level 1 CT 24/7 and existing CT services 0800 – 2200 hrs, possibility of Level 2 CT afterhours Level 1 Ultrasound 8am - 5pm Level 2 8am - 8pm, M - F, 5 days a week (including MRI) Enhanced mobiles service provision across 2 buildings 1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call). 1x IR Radiographer servicing INR & IR ALS response ALS response available Nil inpatients to return to CASB Level 1 ED

9 Service Model Option 2D: Resourcing Enhancement to Support Current Activity and Safe Clinical Operations

9.1 Summary of Option 2D and what it aims to deliver

This option is to open the Level 1 CT, Mobile X-Ray service, Level 2 CT (0800 – 2000 hrs M - F), Level 2 General X-Ray, Level 2 MRI, and Level 2 Ultrasound (0800 – 1700 hrs M – F), and booked cases only for Level 3 CT and MRIs in the CASB.

9.2 Underlying Assumptions of Option 2D - In Hours

Although it is assumed that clinical activity will not increase in Option 2, some increase in operational expenses including employee related expenses and activity funding are required due to the increased number of imaging satellites across the precinct and the impact this has on distance and logistics.

An integration of multiple ICT systems including RIS PACS, Surginet, and CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates.

Likely inability to transfer patients to the main department without enhancement of orderly services.

9.3 Operations Deliverable as per Option 2D

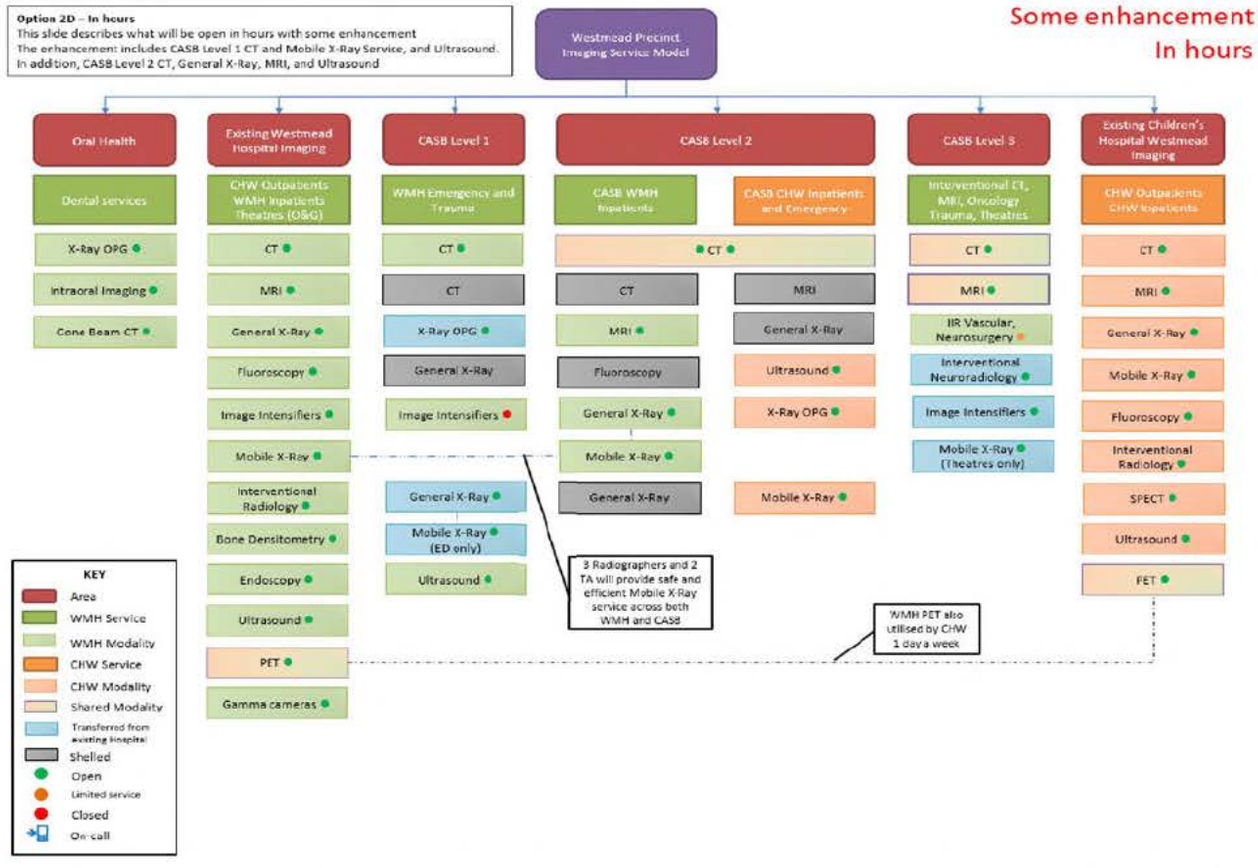


Diagram 11: High level summary of all available Westmead Precinct Imaging Modalities in hours, where green dots and red dots denote operational modalities under Option 2 of the resourcing plan. The full diagram is available in the Appendix.

There will be 5x CT's and 5x MRI's functioning for Adult imaging. Operation is dependent on employment of sufficient Radiology Registrars, Radiographers and RN's to run the necessary number of rosters. If no additional Radiology Registrars are employed, then only one CT can remain open across the hospital. This would void the commitment made to ED that the Level 1 CT was only to be utilised by ED-based referrals. Additional provision of Radiologists required to report any increased workload.

In order to provide CT Services for each area, two (2) Nurses are required: one (1) for CT and one (1) for the Holding Bay area.

9.3 Underlying Assumptions for Option 2D – After Hours

Although it is assumed that clinical activity will not increase in Option 2, some increase in operational expenses including employee related expenses and activity funding are required due to the increased number of imaging satellites across the precinct and the impact this has on distance and logistics.

An integration of multiple ICT systems including RIS PACS, Surginet, and CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates.

Almost certain inability to transfer patients to the main department unless there is an enhancement of orderly services.

- CASB Level 2 closed 2000 – 0800 hrs next day and weekends / Public Holidays
- There will be 1x CT and 1x MRI in the Main Radiology Department on call providing and adult after-hours. Operation is dependent on employment of sufficient Radiology Registrars, Radiographers and RN's to run the necessary number of after-hours rosters. If no additional Radiology Registrars are employed, then only one CT can remain open across the hospital. This

would void the commitment made to ED that the Level 1 CT was only to be utilised by ED-based referrals. Additional provision of Radiologists required to report any increased workload.

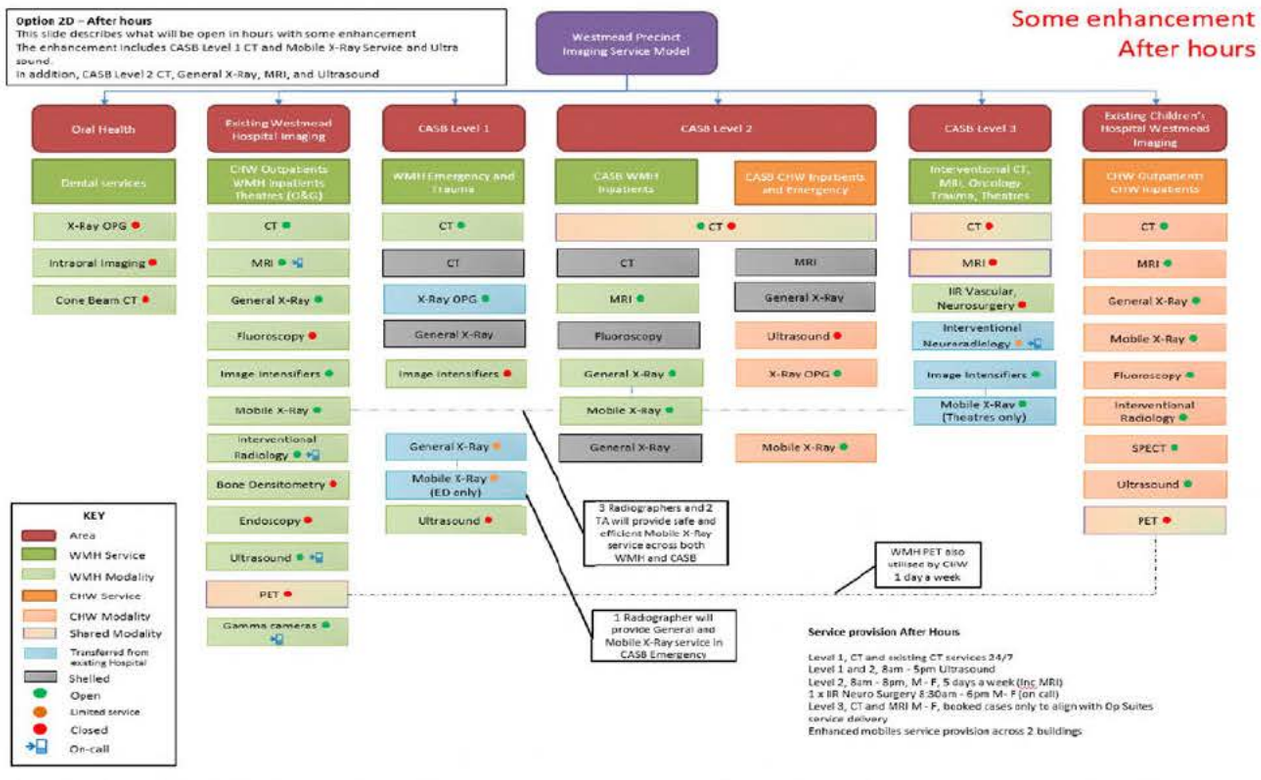


Diagram 12: High level summary of all available Westmead Precinct Imaging Modalities after hours, where green dots and red dots denote operational modalities under Option 2 of the resourcing plan. The full diagram is available in the Appendix.

9.4 Risks, Issues, and Other Factors for Consideration

The risks of this option to hospital operations and other clinical services are listed in the following table.

Department	Description of risk
Impact on patient flow	During downtime and routine maintenance all CASB inpatients will need to return to WMH
Risk to patients	Reduced likelihood delays in performing imaging requests due to increased geographical distance, except fluoroscopy and angiography services
ALS Coverage	Risk mitigated
Emergency Department	Patients requiring angiography or fluoroscopy services need to return to WMH, imaging/radiology department During downtime and routine maintenance all CASB inpatients will need to return to WMH
Intensive Care Services	ICU patients may be accommodated Level 3, CASB or existing WMH
Trauma	Provision of Intraoperative CT: booked cases only to align with Operative Suite's Service delivery
Theatres	1 x Radiographer will be available for INR, but there will be no services for other IIR (hybrid) activity.

Department	Description of risk
	After-hours cover for INR and Main Department IR cover: 1x Radiographer shared by 2x Services. Any other Interventional Radiographer activity constitutes a New Service.4 x II's can be operational, as it is existing service.
Cardiology	As there will be internal competition for CASB Level 2 CT and MRI, Cardiology will share availability with other competing referrers. i.e. Cardiac CTCA and MRI services can be provided in a limited capacity
Mobile service	Risk mitigated
Inpatients	All inpatients requiring Fluoroscopy, Angiography must transfer to existing Radiology department for Imaging Services
NIDU	All inpatients requiring Fluoroscopy, Angiography must transfer to existing Radiology department for imaging services
NICU	As per current protocol return CHW other than NICU mobile x-ray
Orderlies	Provision of additional orderlies commensurate with the level of service required
ICT	Risk mitigated with successful ICT integration

Assumptions	Level 1 CT 24/7 and existing CT services 0800 – 2200 hrs Level 1 and 2 Ultrasound, 8am - 5pm Level 2 Radiology Services (Including. MRI), 8am - 8pm, M – F, 5 days a week. After-hours inpatient CT services will be transferred to the Main Department 1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call). 1x IR Radiographer servicing INR & IR 1 x IIR Neuro Surgery 8:30am - 6pm and M- F (on call) Level 3, CT and MRI M - F, booked cases only to align with Op Suites service delivery enhanced mobiles service provision across 2 buildings ALS response available Nil inpatients to return to Level 1 ED

10 Service Model Option 3: Full Operational Model to support Long Term Vision

10.1 Summary of Option 3 and what it aims to deliver

Service Model Option 3 is indicative of what Medical Imaging services can be provided if resourcing enhancement is provided to support the long term growth in activity. This is a long term vision.

Please note that any new Service requires enhancement to existing resources. e.g. Cardiac Imaging, NSW State-Wide Tele-Stroke Service and provision of Interventional Radiographers to run four (4) hybrid Theatres on CASB Level 3.

In order to provide CT Services for each area, two (2) Nurses are required: one (1) for CT and one (1) for the Holding Bay area.

10.2 Underlying Assumptions of Option 3 – In Hours

The existing workforce will continue operations in the existing departments for both Westmead Hospital and Children's Hospital at Westmead. This Option represents full capacity as provided by the CASB which is an expansion to cater for population growth in the decades to come.

10.3 Operations Deliverable as per Option 3

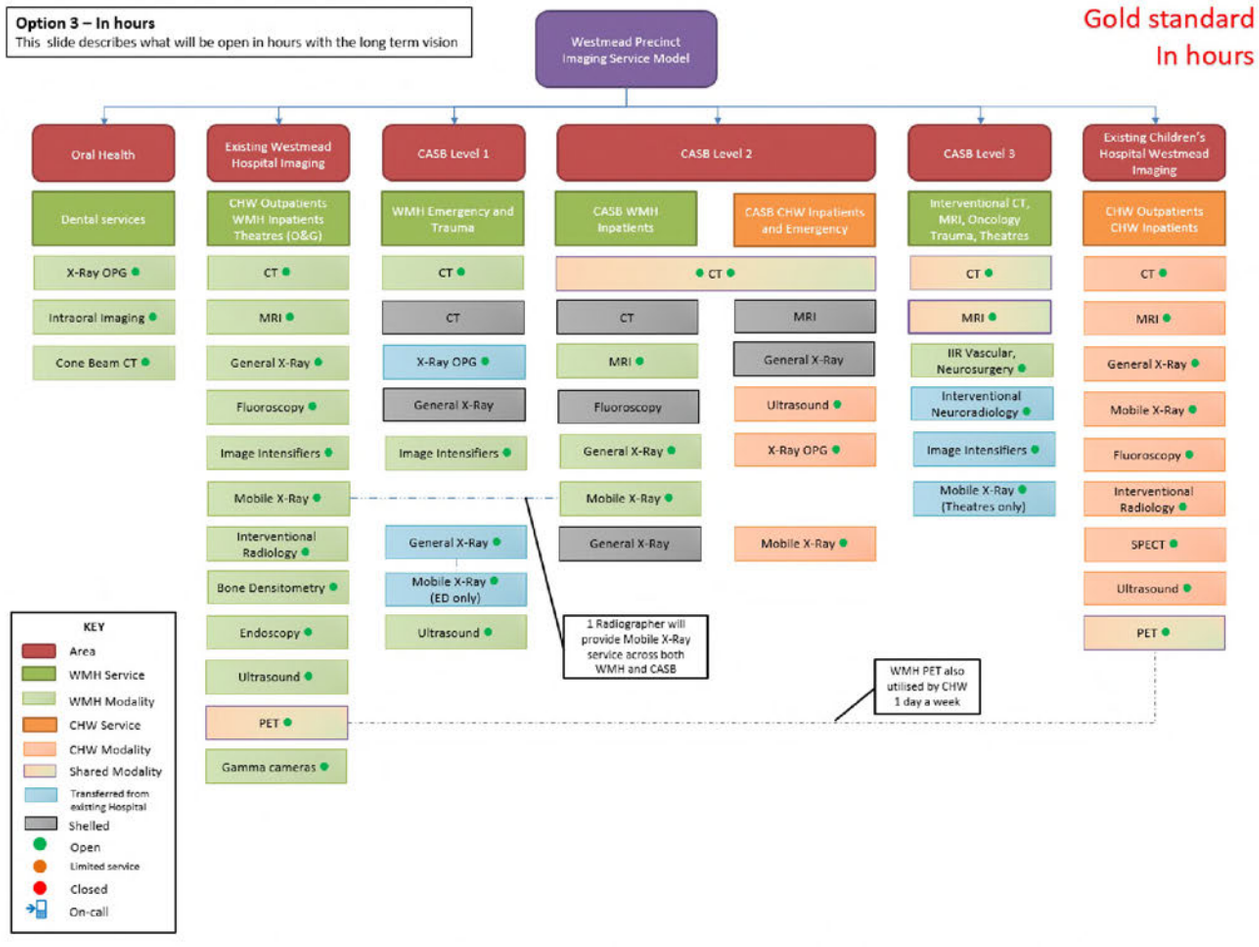


Diagram 12: High level summary of all available Westmead Precinct Imaging Modalities during hours, where green dots and red dots denote operational modalities under Option 3 of the resourcing plan. The full diagram is available in the Appendix.

10.4 Underlying Assumptions for Option 3 – After Hours

To align with the increase in clinical activity, this option requires an increase in operational expenses including employee related expenses and activity funding are required due to the increased number of imaging satellites across the precinct.

An integration of multiple ICT systems including RIS PACS, Surginet, and CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates.

Almost certain inability to transfer patients to the main department unless there is an enhancement of orderly services.

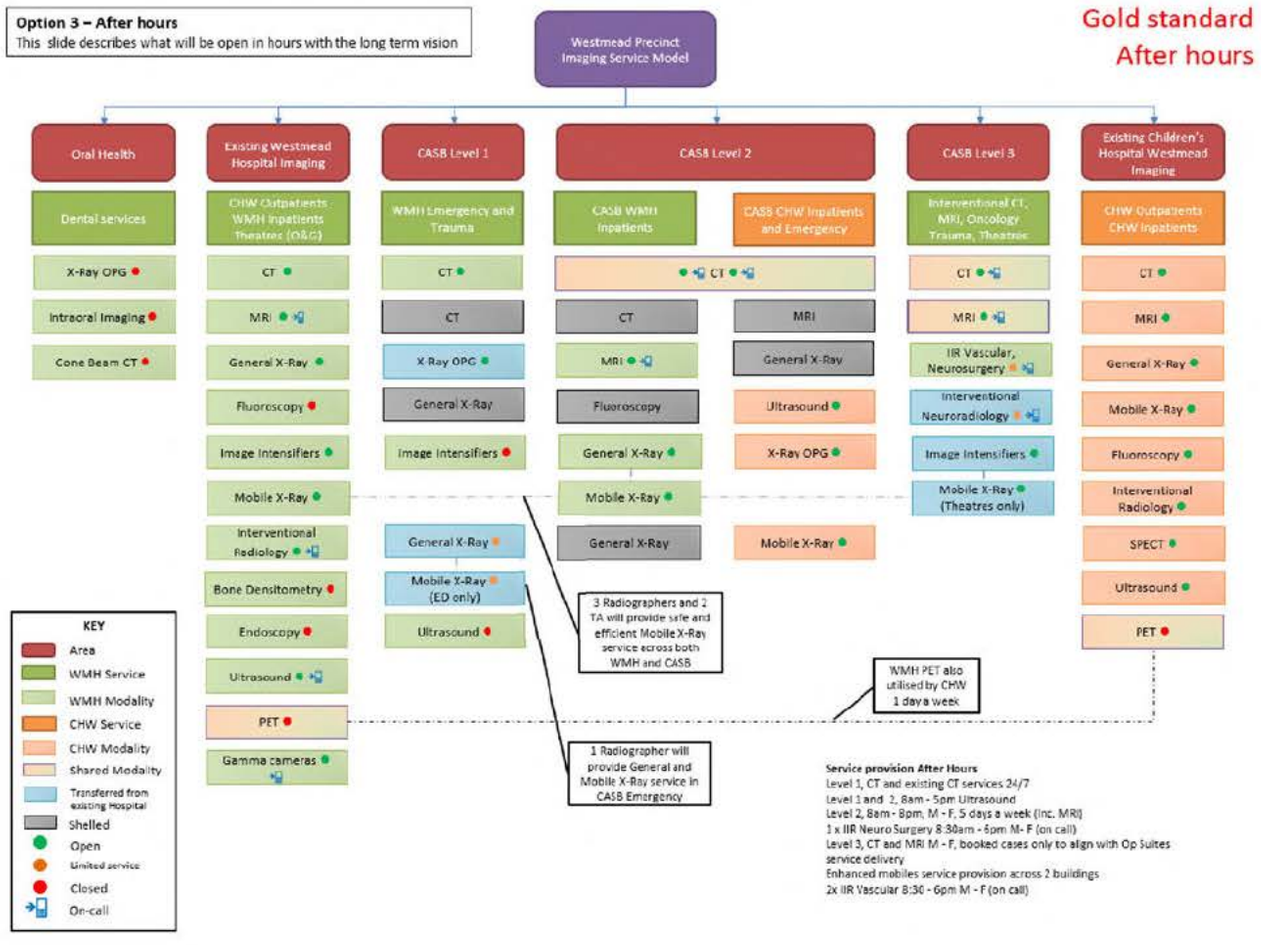


Diagram 13: High level summary of all available Westmead Precinct Imaging Modalities after hours, where green dots and red dots denote operational modalities under Option 3 of the resourcing plan. The full diagram is available in the Appendix.

10.5 Risks, Issues, and Other Factors for Consideration

Provision of future services is dependent on adequate staff resourcing to four (4) core areas together with maintenance of satellite services to Auburn Hospital Radiology Department, Breast Cancer Imaging and Dental Services. The current Radiology Department will be split into four major units, with each unit running independent of each other.

In summary, the Radiology Department will be greatly expanded with commensurate resourcing of Radiologists, Radiology Registrars, Nursing, Radiographers, Sonographers, Clerical Staff and Orderlies required to provide services. Provision of future services is dependent on adequate staff resourcing.

The risks of this option to hospital operations and other clinical services are listed in the following table.

Department	Description of risk
Impact on patient flow	During downtime and routine maintenance there will be cross campus flow of patients to available modality
Risk to patients	Reduced likelihood delays in performing imaging requests due to increased geographical distance, except fluoroscopy and angiography services
ALS Coverage	Risk mitigated
Emergency Department	During downtime and routine maintenance all CASB inpatients will need to return to WMH

Department	Description of risk
Intensive Care Services	Risk mitigated
Trauma	Risk mitigated
Theatres	Risk mitigated
Cardiology	As there will be internal competition for CASB Level 2 CT and MRI, Cardiology will share availability with other competing referrers. i.e. Cardiac CTCA MRI can be provided in a limited capacity
Mobile service	Risk mitigated
Inpatients	Risk mitigated
NIDU	Risk mitigated
NICU	As per current protocol return CHW other than NICU mobile x-ray
Orderlies	Provision of additional orderlies commensurate with the level of service required
ICT	Risk mitigated with successful ICT integration

Assumptions	Level 1, CT and existing CT services 24/7 Level 1 and 2, 8am - 5pm Ultrasound Level 2, 8am - 8pm, M - F, 5 days a week (Inc. MRI) 1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call) Level 3, CT and MRI M - F, booked cases only to align with Op Suites service delivery enhanced mobiles service provision across 2 buildings 2x IIR Vascular 8:30 - 6pm M - F (on call) ALS response available Nil inpatients to return to Level 1, ED Sufficient Interventional Radiographers and Sonographers to run their respective Services

11 Staffing Model

11.1 Summary of Resource Options

Westmead Hospital

Workforce and resourcing planning utilises the information outlined from the Model of Care/Service and provides a guideline on identified roles and positions needed. In this section, the outline of the proposed staffing model and skill mix to support the clinical and non-clinical services for this Model of Care are outlined. A comparable approach has been undertaken across all service areas to facilitate consistency under the following three options for operations.

Option 1: Current state delivering services from the current Westmead Hospital Radiology Department, but with no enhancement of current activity and resourcing for the CASB. In this Option, ED moves across to CASB Level 1. Current ED X-Ray Services will move to CASB Level 1; however CT Services to ED will continue to be provided from the Main Department.

Option 2: Resource enhancement to support current activity and safe and compliant clinical operations. This means there are 4 possible options, each offering an increased number of available services commensurate on provision of adequate staffing:

Option 2A: Services/modalities available in addition to existing Westmead Hospital services include the CASB Level 1 CT and CASB Mobile X-Ray service. In this option the patient holding bays on Level 1 will need to be operationalised simultaneously with the opening of CT, General X-ray and ultrasound services.

Option 2B: Services/modalities available in addition to existing Westmead Hospital services include the CASB Level 1 CT including patient hold bays, CASB Mobile X-Ray service, CASB Level 2 CT, and CASB Level 2 General X-ray. In this option the patient holding bays on Level 1 and 2 will be operational.

Option 2C: Services/modalities available in addition to existing Westmead Hospital services include the CASB Level 1 CT including patient hold bays, CASB Mobile X-Ray service, CASB Level 2 CT, CASB Level 2 General X-ray, CASB Level 2, MRI and CASB Level 1 Ultrasound service. In this option the patient holding bays will be operational.

Option 2D: Services/modalities available in addition to existing Westmead Hospital services include the CASB Level 1 CT including patient hold bays, CASB Mobile X-Ray service, CASB Level 2 CT, CASB Level 2 General X-ray, CASB Level 1 and 2 Ultrasound service, and CASB Level 3 Intraoperative MRI and CT. In this option the patient holding bays will be operational.

Option 3: Full operational model to support the long term vision based on the Business Case and Financial Impact statement, meaning all modalities delivered on Day 1 will be operationalised (this excludes shelled modalities).

The Project User Group's recommendation is that **Option 2C** for Westmead Hospital be considered for implementation to support the complex requirements of the Westmead Health Precinct Imaging Service.

If Option 2C is not selected, then it is recognised that there is likely a staged model of funding for service provisions. In this scenario, **the PUG recommends sequential order from Option 2A through to option 3.**

A range of resource options have been developed for consideration. It is recommended that a detailed analysis of FTE requirements be conducted for each option taking into account the recommended minimum staffing numbers required for modalities listed in Appendix 7.

This body of work should form part of the workforce strategy brief that is being developed for the Westmead Hospital Executive and Chief Executive to assist the team with identifying a preferred option. It is expected that a detailed workforce plan will contain details on the total FTE, budget, positions and grades of all staff requirements.

The Children's Hospital at Westmead

Workforce and resourcing planning utilises the information outlined from the Model of Care/Service and provides a guideline on identified roles and positions needed. In this section, the outline of the proposed staffing model and skill mix to support the clinical and non-clinical services for this Model of Care are outlined. A comparable approach has been undertaken across all service areas to facilitate consistency under the following three options for operations:

Option 1: Current state delivering services from existing Radiology Department at The Children's Hospital at Westmead, with no enhancement of current activity and only Mobile X-Ray on request providing resourcing for the CASB

Option 2: Resource enhancement to support current activity and safe and compliant clinical operations that support the satellite CASB CHW Medical Imaging Department to operate. Services/modalities available in addition to existing CHW would be CASB CHW MI Level 2 X-Ray, Ultrasound, CT and Mobile X-Ray service. On request support to the Level 3 CASB CHW PACU and DOR.

Option 3: Full operational model to support the long term vision based on the Business Case and Financial Impact statement, meaning all modalities delivered on Day 1 will be operationalised (this excludes shelled modalities) Also X-Ray reporting.

An overarching resourcing plan, to incorporate all areas of the required workforce, will be collated to identify all clinical and non-clinical positions required. This will be inclusive of the individual services required within specific units and a breakdown of department/discipline requirements. The overarching plan will be utilised as a negotiation tool for funding and resourcing approval whilst considering the Model of Care outlined.

11.7 Resourcing Options Recommendation

Westmead Hospital

The Project User Group's recommendation is that **Option 2C** be considered for implementation to support the complex requirements of the Westmead Health Precinct Imaging Service as the initial Staffing Plan for opening the CASB.

To enable the commissioning of a modality e.g.: CT there is a minimum staffing requirement from each discipline (Radiology Registrar, Clerical Staff, Nursing, Radiographer, Staff Specialist Radiologists, and Imaging Transport Assistants).

The Children's Hospital Westmead

The Project User Group's recommendation is that **Option 2** be considered for implementation to support the complex requirements of the Westmead Health Precinct Imaging Service.

11.8 Summary of Staff Roles and Responsibilities

Table 6: Provides a high level summary of staff roles and their responsibilities. It must be noted that a detailed accountabilities for each discipline can be obtained through each position description.

Staff Classification	Westmead Hospital	Children's Hospital at Westmead
Medical	Medical staff provide medical governance and oversight of patients within Medical Imaging RANZCR Training of Radiology Registrars mandating set Radiologist: Registrar ratios University Precinct Teaching and Research	Medical staff provide medical governance and oversight of patients within Medical Imaging RANZCR Training of Radiology Registrars mandating set Radiologist: Registrar ratios University Precinct Teaching and Research
Nursing Unit Manager	Registered Nurses are responsible for direct patient care	Registered Nurses are responsible for direct patient care
Registered Nurse/Enrolled Nurse	Registered Nurses are responsible for direct patient care	Registered Nurses are responsible for direct patient care
Administration	Clerical staff are responsible for the administrative aspects of patient care	Clerical staff are responsible for the administrative aspects of patient care
Technical Assistant (T/A)	Assist patient transfers and assist with imaging procedure tasks	NA
Radiographer	Radiographers acquire Imaging during procedures	Radiographers acquire Imaging during procedures
Sonographer	Sonographers acquire Imaging during procedures	Sonographers acquire Imaging during procedures

12 Expected Benefits and Outcomes

The benefits that the ideal model of service delivery for the Medical Imaging service includes:

- World class diagnostics
- Timely diagnosis at the point of care
- Optimal patient care
- Patient access and flow aligned with best practice, evidence-based time frames

This is a long term vision that can only be achieved with increased resourcing.

13 Summary of Evidence

The evidence that supports this model of care includes the following:

- Royal Australian and New Zealand College of Radiologists (RANZCR) Standards of Practice for Diagnostic and Interventional Radiology
- RANZCR Training Guidelines for Registrars and Training Policies
- Australian Council on Healthcare Standards Radiology Clinical Indicator User Manual v6
- The Emergency Department is subject to the key performance indicators set by the NSW Ministry of Health (MOH). This includes Emergency Treatment Performance (EPT) measure. A rise in ETP compliance rates from 30% to 70% is strongly correlated with a reduction in Hospital Standardized Mortality Ratio (HSMR) for patients specifically admitted from the ED.

14 Scheduling & Coordination

14.1 Westmead Hospital

- The use of Operative and Peri-Operative modalities is by Operative / Peri-Operative oversight of Booking / Scheduling
- Interventional Radiographers and Radiographers in general may be a limited resource at the time of opening of the CASB. Initiation of a new booking process coordinated with Theatre for the booking of Radiographers depending on availability i.e. Radiographers to be booked in the same manner that an Anaesthetist is booked for theatre.
- A CASB centralized Adult Imaging scheduling and co-ordination team will have oversight of X-ray, CT, Ultrasound, and MRI, including coordination of any modality that may be required for urgent clinical indication; or CT patient flow when acute Paediatric Imaging is requested
- The CERNER software application for diagnostic, and interventional requests will be operational link for RIS/PACS review of images and for access to reports and will liaise with Paediatrics

14.2 Children's Hospital at Westmead

- Current process regarding scheduling and coordination of Medical Imaging Services will initially be managed and supported through the existing CHW Medical Imaging Department.
- There will be a centralised process with the Adult Medical Imaging Department to ensure coordination of any shared modalities required for paediatric patients, this includes the Level 2 CT and the Level 3 integrated MRI and CT.

15 Governance and Cross-Credentialing

15.1 Reporting

The below principles govern the responsibilities of reporting:

- Adult Imaging is to be reporting by Adult Radiologists
- Paediatric Imaging is to be reporting by Paediatric Radiologists

15.2 Governance

Governance requirements include but are not limited to the following considerations:

- LSPN and Medicare Billing – legislative requirements must be examined for shared Governance models via the LSPN. This has implications for TMF insurance coverage, Medicare billing and EPA licensing
- Paediatric utilisation of Level 3 Interventional CT and Interventional MRI Services, and Level 2 CT and possibly Fluoroscopy Services
- Use of Theatres with digital imaging equipment utilizing ionizing radiation

It is noted the operational governance arrangement is still pending finalisation through a Service Level Agreement between CHW and WMH.

15.3 EPA licensing

EPA licensing for the shared modalities has not been resolved. EPA licensing requirements and details will be finalised prior to the commissioning of the CASB. It is noted the operational governance arrangement is still pending finalisation through a Service Level Agreement between CHW and WMH.

15.4 IT Cross-Credentialing for RIS/PACS

The RIS/PACS system for Western Sydney Local Health District is currently being upgraded through a project governed by eHealth NSW. The Cross-Credentialing for use of RIS/PACS must be finalised prior to the commissioning of the CASB. There is currently a framework under planning to implement a cross-credentialing arrangement for CHW and WMH. It is noted the operational governance arrangement is still pending finalisation through a Service Level Agreement between CHW and WMH.

15.5 Legal Risks

Ionising Radiation risks transferred from CHW to WSLHD through sharing of equipment must be mitigated. It is anticipated that WSLHD will be legally responsible for CHW radiation incidents when using WSLHD equipment. However, this is subject to further discussions at the facility level. It is noted the operational governance arrangement is still pending finalisation through a Service Level Agreement between CHW and WMH.

15.6 CE Joint Signatories RE: PET and CT models

Currently a joint Service Level Agreement between WSLHD and SCHN exists for the PET scanner. A similar document will be required to support the shared use of the shared CT scanner in Level 2 of the CASB. This must be finalised prior to the commissioning of the CASB. It is noted the operational governance arrangement is still pending finalisation through a Service Level Agreement between CHW and WMH.

15.7 Australian Medical Council Accreditation Requirements

RANZCR Accreditation of Westmead Radiology Department is required for accreditation of the following disciplines:

- Emergency Department Training Scheme
- Intensive Care Department Training Scheme
- Orthopaedic Training Scheme
- Department of Medicine Physician Training Scheme

16 Functional Relationships

Summary

Table 7: List of services or organisations with functional relationships to Medical Imaging

Internal	External
Westmead Hospital Emergency Department	IR and Fluoroscopy for Blacktown and Mount Druitt Hospitals
Children's Hospital at Westmead Emergency Department and Short Stay Unit	Inter-hospital transfer within WSLHD
Westmead Hospital Radiology	Helipad
Children's Hospital at Westmead Radiology	Vendors
Maintenance	NSW eHealth RIS/PACS
Intensive Care Services	
Perioperative Services	
Orderly Services	
NSW Infectious Diseases Unit	
Inpatient services	
Outpatients services	

17 Westmead Health Precinct

17.1 Westmead Hospital Emergency Department

Current imaging modalities within the Emergency Department (General X-Ray, X-Ray OPG) will continue to be available on Day 1 of the Emergency Department operating in the CASB without additional resourcing.

However, the new CT scan located next to the Resuscitation Bays in CASB Level 1 will not be available on Day 1 without additional resourcing. The risk of this to the Emergency Department is that all patients presenting to the ED requiring a CT must be transferred to the Westmead Hospital existing Medical Imaging department on Level 2 for imaging.

17.2 Children's Hospital at Westmead Emergency Department and Short Stay Unit

Current imaging modalities requirement for the CASB CHW Emergency Department will continue to be provided within the existing CHW Medical Imaging Department without additional resourcing the satellite CASB CHW Medical Imaging Department cannot be supported. A mobile X-ray service will be provided on request.

Enhancement in FTE will ensure the satellite CASB CHW Medical Imaging Department can be supported in hours and provide the identified modalities inclusive of X-ray, Ultrasound and CT on level 2 and also provide a service to CHW PACU and DOR on request. Further enhancement would support out of hours and overnight support and on site X-Ray reporting.

To note are the shared modalities Level 2 CASB CT and Level 3 Intraoperative MRI and CT which are dependent on the WMH options supported and may require further consultation once the option has been confirmed.

17.3 General Services

General services, including routine cleaning, waste removal, and management of spills and other environmental matters will be delivered by Westmead Hospital. It is noted the operational governance arrangement is still pending finalisation through a Service Level Agreement between CHW and WMH.

17.4 Maintenance

- A formal maintenance and routine model for servicing of imaging equipment is essential for safe operation and reliable operations. WSLHD are exploring the implementation of managed

equipment scheme (MES) in partnership with MOH. Currently awaiting outcome of a formal agreement.

17.5 Intensive Care Services

- Clinical coordination (which test, priority, and reporting time) piece which will require medical → medical consultation
- Flow will need a navigator role in order to optimize patient flow between ICU and radiology
- As above for managing all incoming flow

17.6 Perioperative Services

- Theatre scheduling involving radiological equipment must be coordinated via CASB Radiology for adequate resource allocation within an appropriate timeframe
- Utilisation of Surginet to book Radiographers services (similar to the process for booking an Anaesthetist)
- Action to check Surginet/CERNER/RIS/PACS talk to each other via Kestrel RIS for non-surgical patients CT, MRI, IR and INR on Level 3 CASB
- Paediatric Interventional Radiology procedures will be booked through Surginet with co-ordination via CWH RIS/PACS +/- discussion with the responsible officer from the Adults Radiology Service (pathway yet to be agreed upon)

17.7 NSW Infectious Diseases Unit (Biocontainment Unit)

- Current existing procedural guidelines to assist with the Ebola virus imaging arrangements will remain in place. Patients will have access to mobile X-ray and mobile examinations. A body of work is required for the implementation for a state-wide Bio-containment model in consultation with Radiology.

17.8 Orderly Services

- A mixed model will be ideal. This workforce would consist of dedicated orderlies based within Imaging to support the Medical Imaging department as well as general orderlies that may be called upon when required.

17.9 Helipad

- There is a helipad on Level 14 of the CASB. Patients can be transferred from the Level 14 lift directly to Levels 1, 2, and 3.

17.10 Local Health Districts

- The Westmead Hospital Imaging service receives patients from other Local Health Districts, as it is a tertiary level hospital.

17.11 External Organisations

17.11a NSW eHealth RIS/PACS

- NSW eHealth RIS/PACs provides support for RIS/PACS to WSLHD and SCHN. The expedited WSLHD RIS/PACS replacement is scheduled for Q2 2020.

17.11b Vendors

- Vendors maintain a close relationship with the Imaging Department on matters such as maintenance, contracts, etc.

17.12 Breast Cancer Institute (BCI)

- In order to both continue providing a Diagnostic Mammography Service to BCI and extend a new Radiology Service to the CASB, adequate staffing is required
- An SLA to be agreed to between the Radiology Department and BCI for continued provision of Radiologists to this Service

17.13 Auburn Hospital Radiology Department

- Continued provision of a Radiologist service and supervision of Radiology Registrars as provided for within the Radiology Agreement.

18 Operational Arrangements

18.1 Service Level Agreement

- A Service Level Agreement will be developed to outline the agreement between CHW and WMH Medical Imaging services. Further details will be populated in this section once more information is available.

18.2 Corporate Governance

- A Service Level Agreement will be developed to outline the agreement between CHW and WMH Medical Imaging services. Further details will be populated in this section once more information is available.

18.3 Financial Governance

- Financial governance should consider how billings and activity are captured. This is currently being planned as part of the Overarching Change Item 4.12 Financial Structures. Further details will be populated in this section once more information is available.

18.4 Hours of Operation

- A variety of shifts and on call arrangements exist for service delivery. Across multiple disciplines and modalities to provide service delivery for up to a 24/7.
- Inpatient core business hours are 8am – 8pm, Monday – Friday, with provision of services for emergencies outside of these hours/days.
- Reporting hours as per the Radiology Agreement
- On call service are available for interventional radiology services and MRI procedures outside of core business hours.

18.5 Corporate Services including Security, Cleaning etc.

- Corporate services including Security, Linen, cleaning services, and ICT support will be provided by WSLHD or as otherwise specified in the Service Level Agreement.
- The SLA should ensure reimbursement of the operational costs from CHW to WMH.

18.6 Operational Policies & Procedures

Some relevant operational policies and procedures include the following:

- Compliance to NSW EPA Radiation management policies
- Quality Assurance
- Clinical Emergency Response Systems (CERS)
- Safe procedural sedation practice
- Stroke clinical pathway
- CT Neuro perfusion clinical pathway
- Laparotomy clinical pathway
- Appendicitis clinical pathway

19 Support Systems

19.1 Anaesthesia and Critical Care

- Provides complex care to patients requiring anaesthesia.

19.2 Biomedical Services

- Providing professional technical services in relation to clinical products and medical equipment.

19.3 Information and Communications Technology

Integration of multiple ICT systems including RIS PACS, Surginet, and CERNER is essential to coordinate, prioritise and ascertain availability of imaging equipment across multiple site and floor plates.

19.4 Functioning RIS PACS, Local Storage and Advanced Imaging Platforms

- Reporting workflow is dependent on a functional RIS PACS .
- Purchase of an adequate number of Advanced Imaging Licenses to permit Radiographers and Radiologists to carry out their duties, and, in the absence of any plan to install local storage, to concurrently act as a back-up solution in case RIS PACS is unavailable
- Purchase of necessary Advanced Imaging Software necessary to meet Quaternary Level 6 Trauma Hospital workflows

19.5 Bed Bay Numbers

- Inadequate provision of Bed Bays creates bottlenecks within the Department
- One (1) Nurse is required to service each bed bay holding area
- In order to address the shortage of bed-bays in the current main Department, once HOPE has been transferred to the CASB, acquisition of neighbouring space from HOPE for bed-bay utilisation will be required in order to remedy the current situation

20 Monitoring Systems

The following monitoring and quality systems are applicable to all services and staff involved in the operation of the Medical Imaging services and responsibilities for these will be determined as appropriate to the various organisational levels.

20.1 Quality & Safety Systems

- Governance
- Clinical Practice Standards
- Tracking clinical risk and reporting errors in Emergency alert
- Accreditation

20.2 Performance Indicators

Key Performance Indicators (KPI's) are largely dependent on:

1. Adequate staffing levels commensurate with workflow volumes and complexity of imaging
2. A functioning RIS PACS including provision of Advanced Imaging Platform software and Licenses
3. Continued provision of Typists
4. Bed Bay Numbers

5. Workflows
6. Orderly / Transport Assistance Service

20.2.1 Staffing KPI's include the following parameters:

20.2.1. 1Modality KPI's

- Caseload broken down by modality and by area i.e. current Radiology Dept ED, Inpatient and Outpatient – available back to 2013
- Comparison of caseload increase over same period over the past five years

20.2.1.2 Staffing-Dependent KPI's – commensurate on provision of adequate staffing levels to provide this level of service

- The NSW Staff Specialists' Award does not specify KPI's for NSW Staff Specialists. The current Radiology Agreement agreed to KPI's in order to ensure that there is an arms-length arrangement in place for Back-Log Reporting i.e. this is a limited arrangement conditional upon the presence of Back-Log Reporting arrangements.
- Modality Based Reporting turn-around times: median and 5th centile
- Time taken for the referrer to review the Provisional Report i.e. time period from issuing of the Provision Report to review of the report by the Referrer – facilitated by RIS PACS Critical Results Management software
- Time taken for the referrer to review the Final Report i.e. time period from issuing of the Final Report to review of the report by the Referrer – facilitated by RIS PACS Critical Results Management software

20.2.1.3 IIMS Related KPI's

- Number of SAC1 events per quarter expressed as percentage of caseload
- Number of SAC2 events per quarter expressed as percentage of caseload
- Number of call-backs per week for IR and MRI Radiographers out-of-hours

20.2.1.4 Training Related KPI's

- Number of training weeks per quarter for Radiographers and sonographers in the modalities of CT/MRI/Angio/ultrasound

  Provision of Protected Time for Radiology Registrars and Radiologist Directors of Training as per RANZCR Accreditation Requirements

20.3 Financial Indicators:

- Sustainable Radiologist remuneration and employment model established commensurate with the aspirational service to be provided
- Finance and Executive Monitoring
- RVU's / KPI's monitored according to Radiology Agreement: integration with RIS/PACS and daily rosters / extra activities app measuring both reporting and non-reporting activities
- Tracking in WMH and WCH SCHN Equipment maintenance schedule and contracts system
- Timeline for replacement of Medicare eligible equipment monitoring system WMH and WCH SCHN

20.4 Workflows

- KPI's will be dependent on agreed Workflow Patterns
- CASB Level 1 ED CT: Decision agreed by all parties that the ED CT will be dedicated to provision of Adult ED Imaging, though it may rarely act as a back-up CT in the event that other CT's within the Precinct require maintenance
- CASB Inpatient workflows: dependent on whether Level 2 will be commissioned – current pathway is that all CASB Inpatient workflow will be transported to the current Main Department for imaging
- ICU referrals: until a CT is commissioned in the dedicated space adjacent to ICU, all ICU referrals will be transported to the current Main Department for imaging
- Stroke Pathway referrals:
    - All Stroke imaging referred via ED will be imaged in CASB Level 1 ED CT
    - State-wide Stroke Service: in the event that Westmead Hospital joins the State-Wide Service, referrals will be transported to the current Main Department for imaging. Once CASB Level 2 or 3 CT is commissioned, this cohort of patients will be imaged on CASB Level 2 or 3
- Inpatient referrals from the current main building will be referred to the current main department for imaging
- Provision of a Second After-Hours CT: in order to provide after-hours services for Inpatient, ICU and future provision for the State-Wide Stroke Service, it will be necessary to ensure that there is continued provision of CT Services in the current main department: in the short to medium term, this will probably entail a 0700 – 2300 hrs service, though will eventually become full-time
- An after-hours CT service is directly dependent on Radiology Registrar numbers. There are only sufficient Radiology Registrars currently employed to run one (1) after-hour's CT. More Registrars will need to be employed to maintain services for the ED CT from 1800 – 2200 hrs each day, and for 24 hours during weekends / Public Holidays in order to meet current referral volumes
- In the event a second after-hours CT is required in the current main department, its operation will be dependent on adequate staffing levels for Radiology Registrars, Radiographers and RN's
- Breakdowns: in the event of temporary break-down of the CT in the main Department, workflows will redirect to available CT's within the LHD

20.5 Monthly Benchmarks

- Performance benchmarks can be established for these KPI;s when staffing levels for the CASB are identified.

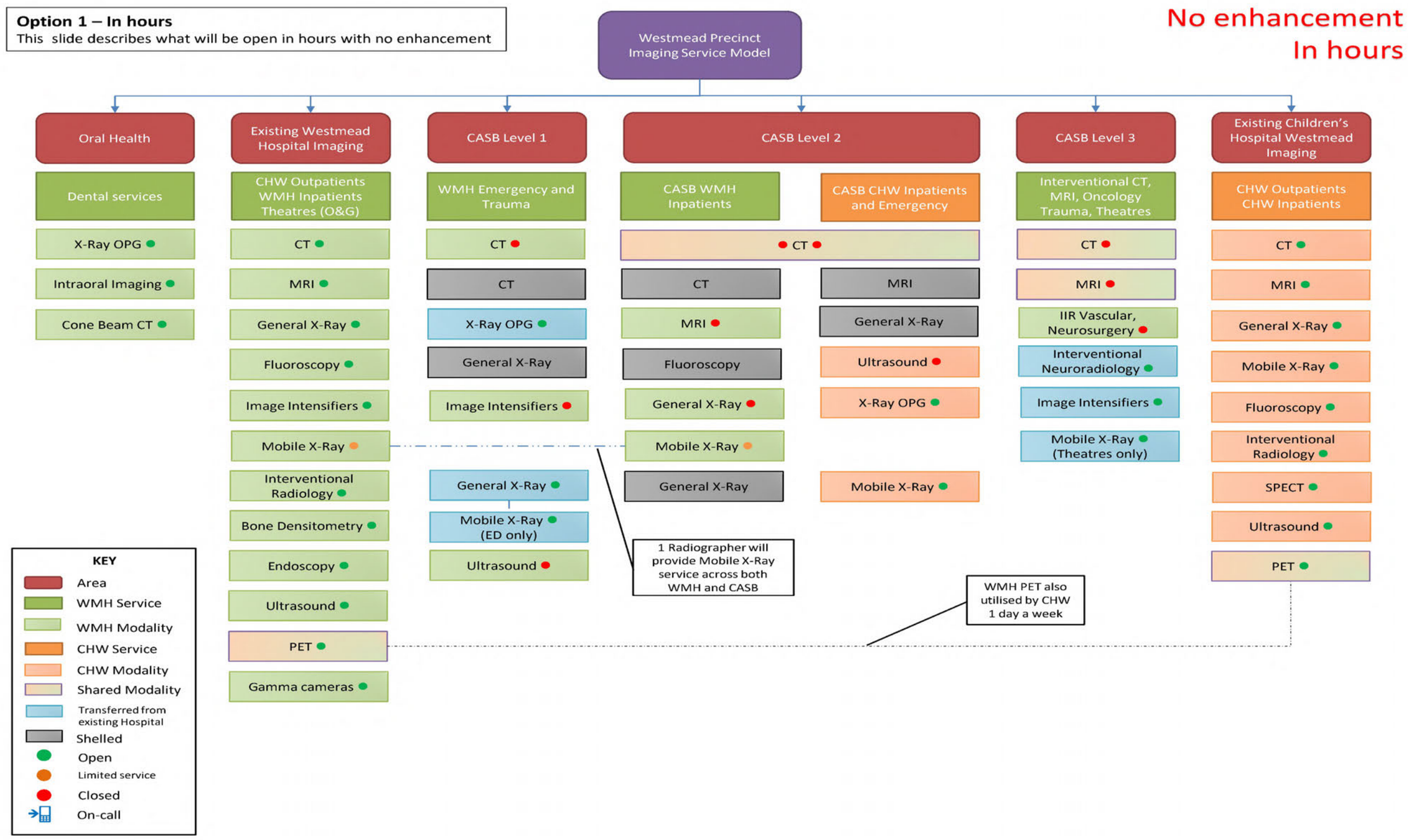
21 Research & Education

- Establish dedicated animal and human imaging research infrastructure at Westmead – within ETR green space
- Establish a Bio – Medial Image Processing Research Laboratory
- Imaging research to focus on MRI and PET/CT, low dose CT
- Provide enhanced support by medical physicists and biomedical engineers for research
- Access to bioinformatics support and project managers to assist with large complex research projects
- Strengthen the focus on technology development
- Establish university appointments to optimise links between clinical service delivery and the University.

- Strengthen sonographer training capacity to meet future demand for ultrasound.
- Support growth in students including for biomedical imaging.
- Associated functional requirements:
    - Establish facilities and equipment for sonography training
    - Access to multidisciplinary student hot desks collocated with Imaging Department
    - Provide access for students to lockers and staff amenities within department e.g. staff rooms
    - Multi-functional translational imaging centre.
    - Shared access to large meeting/tutorial spaces with adjacent facilities.

22 Appendices

22.1 Appendix 1: Detailed Summary of Option 1



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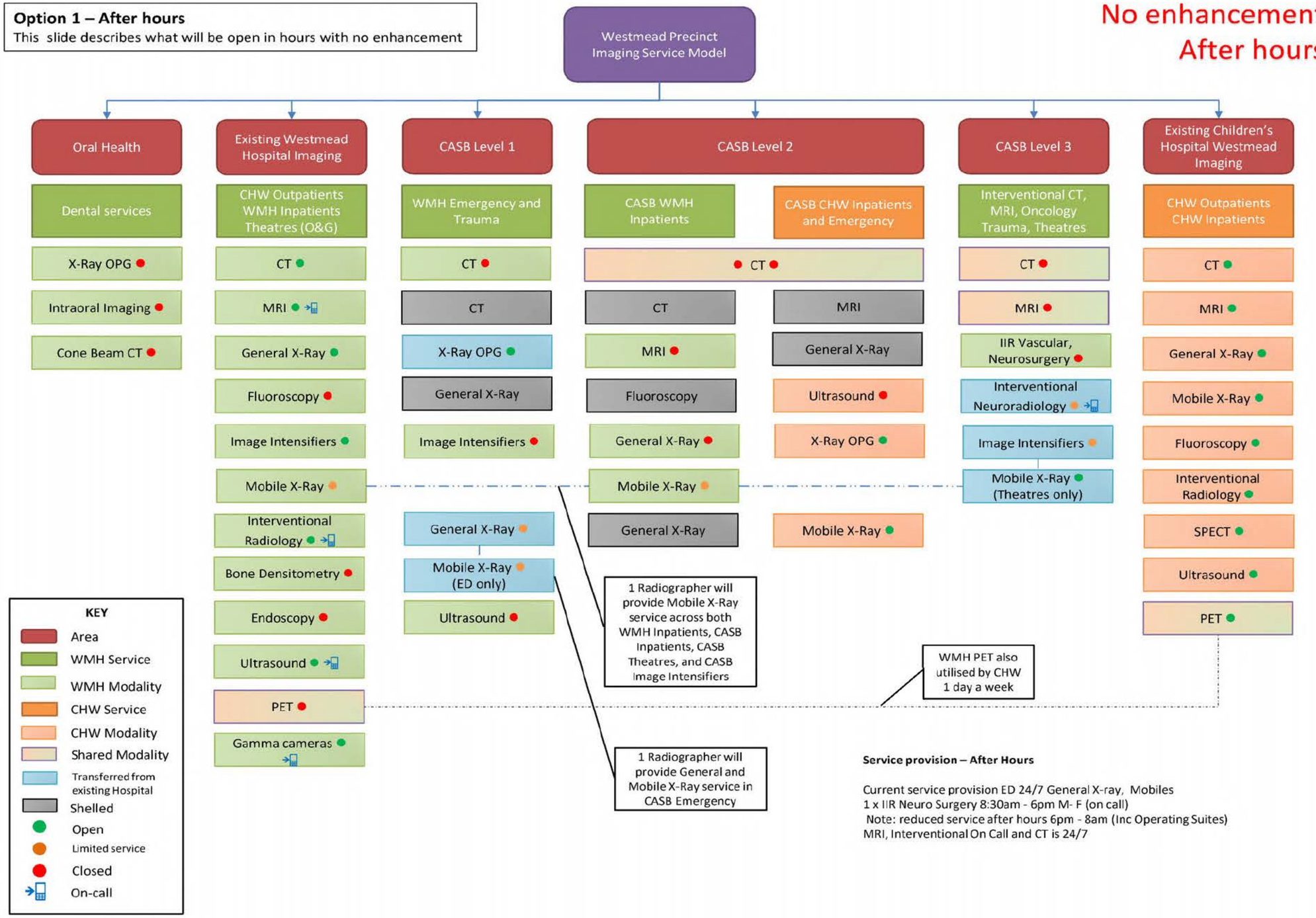
Option 1 – After hours
This slide describes what will be open in hours with no enhancement

No enhancement
After hours



Service provision – After Hours

Current service provision ED 24/7 General X-ray, Mobiles
1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call)
Note: reduced service after hours 6pm - 8am (Inc Operating Suites)
MRI, Interventional On Call and CT is 24/7

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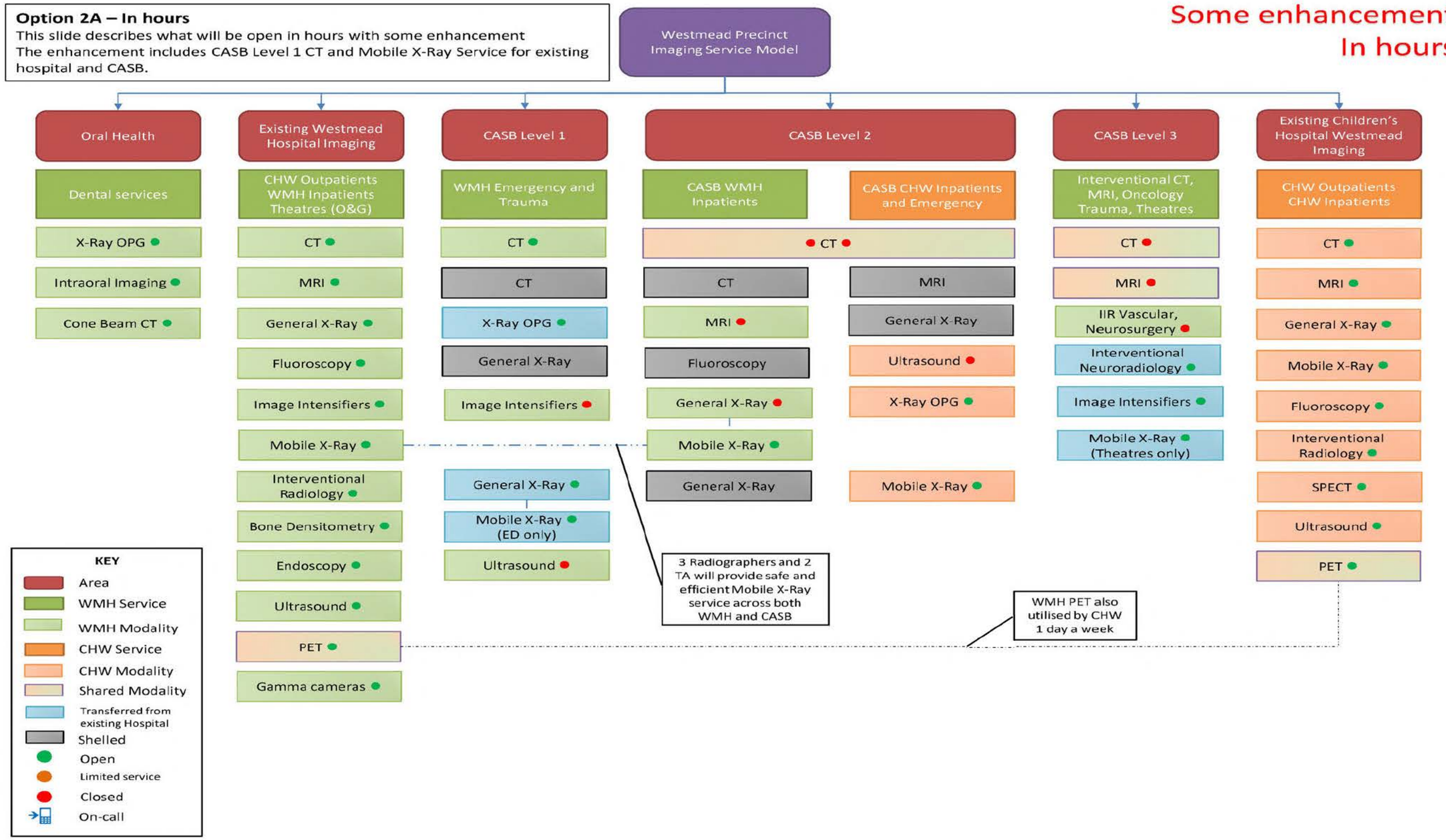
22.2 Appendix 2: Detailed summary of Option 2A

Option 2A – In hours
This slide describes what will be open in hours with some enhancement
The enhancement includes CASB Level 1 CT and Mobile X-Ray Service for existing hospital and CASB.

Some enhancement
In hours



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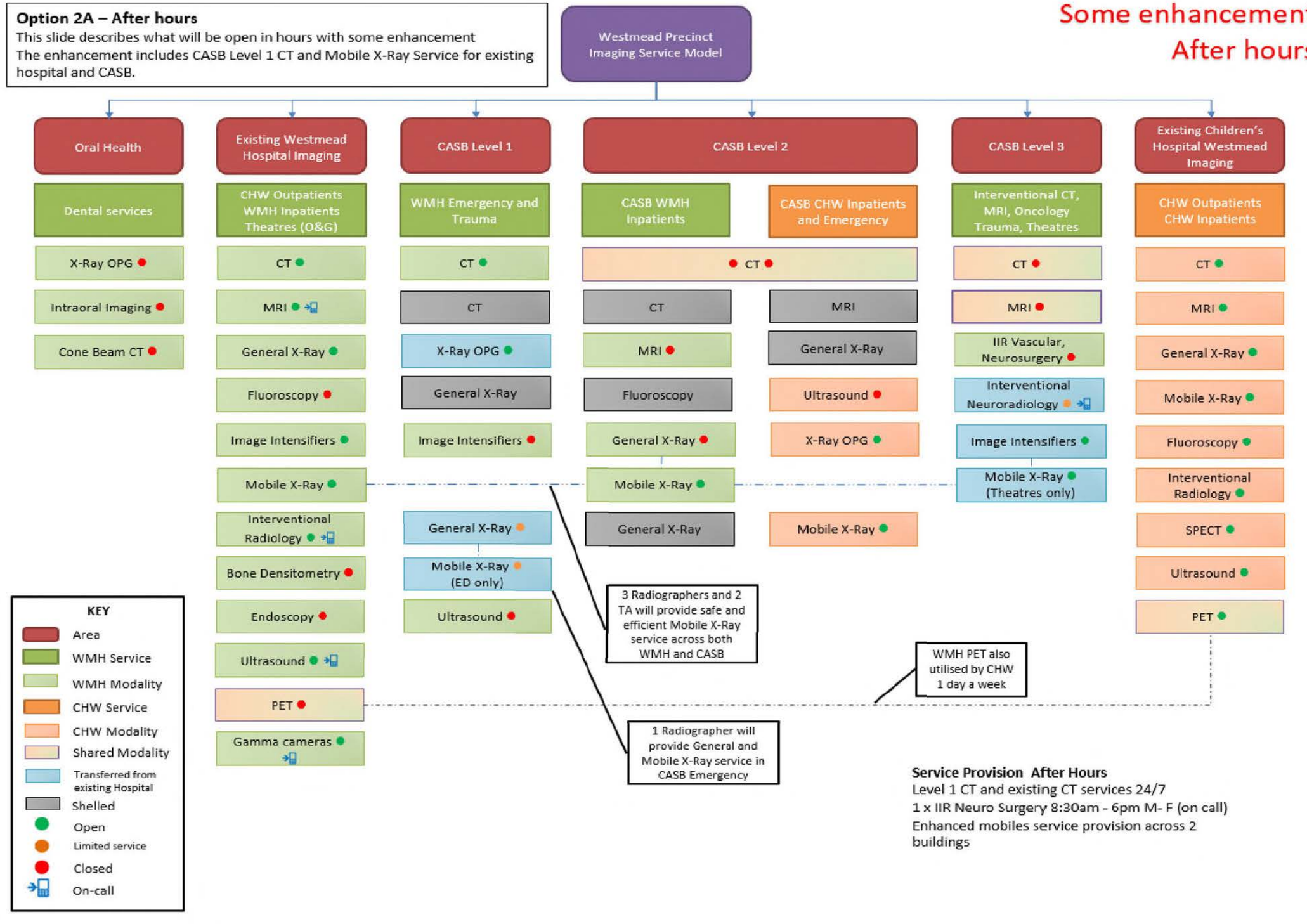
Option 2A – After hours
This slide describes what will be open in hours with some enhancement
The enhancement includes CASB Level 1 CT and Mobile X-Ray Service for existing hospital and CASB.

Some enhancement
After hours



Service Provision After Hours
Level 1 CT and existing CT services 24/7
1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call)
Enhanced mobiles service provision across 2 buildings

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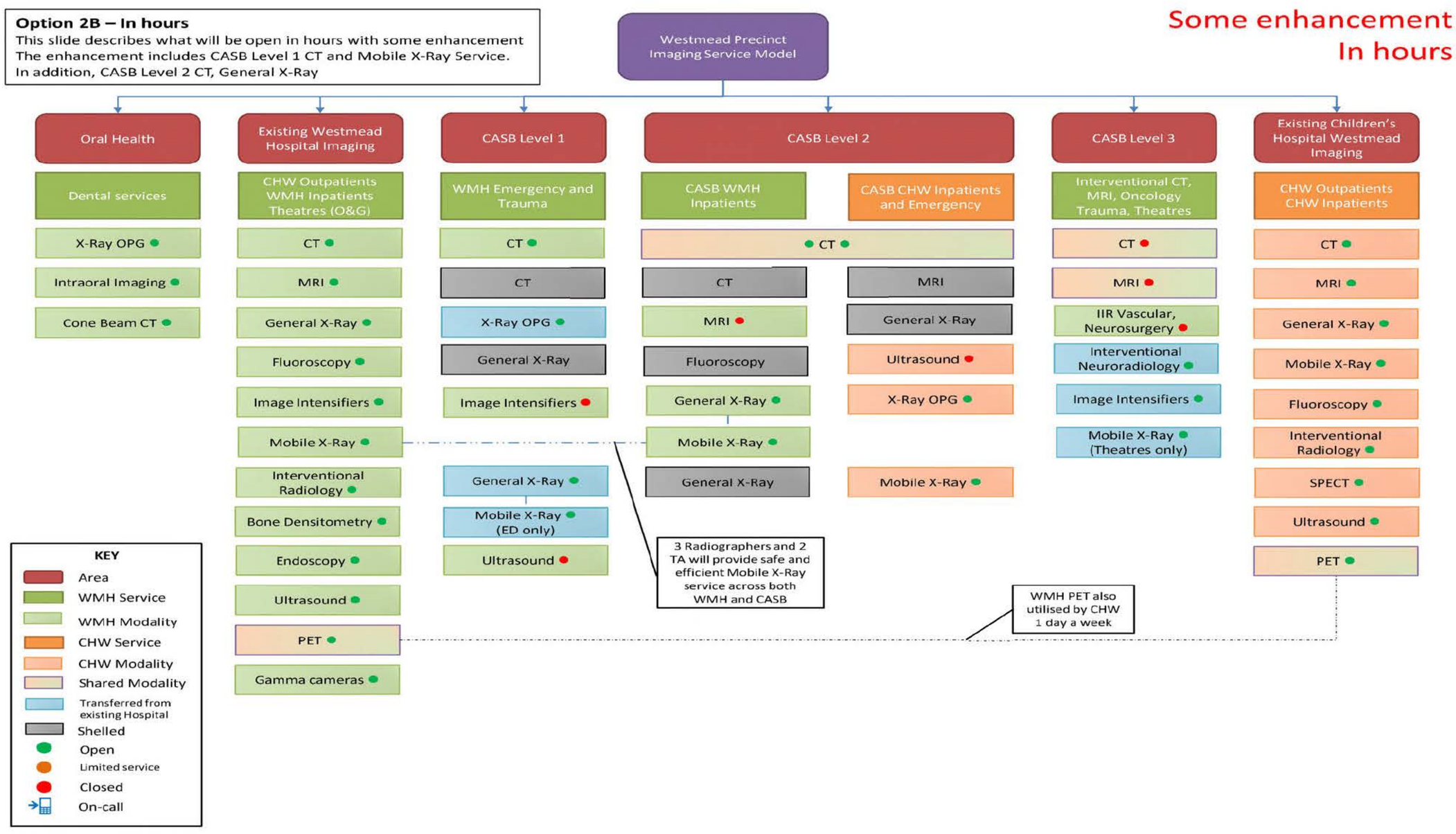
22.3 Appendix 3: Detailed Summary of Option 2B



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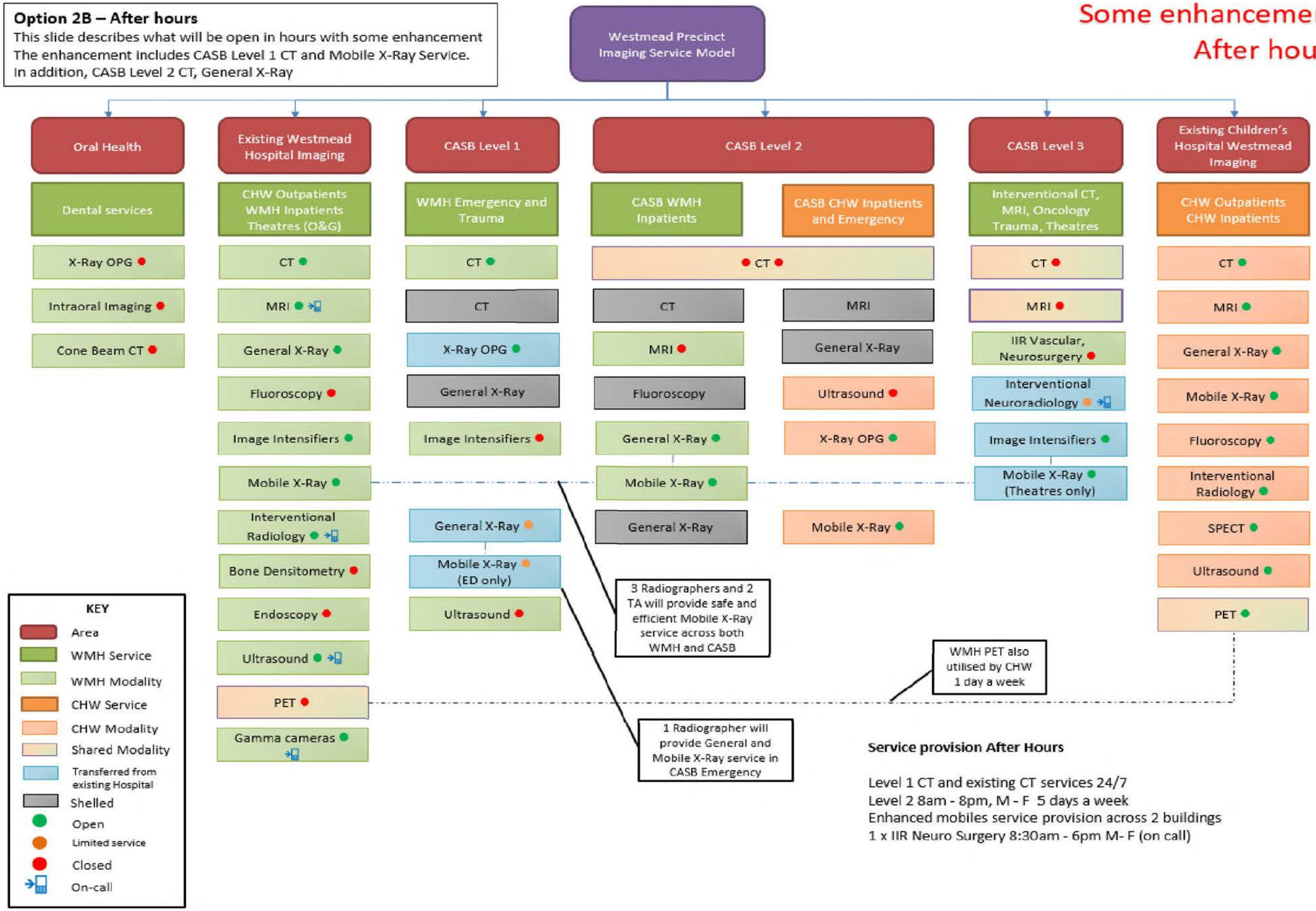
Option 2B – After hours
This slide describes what will be open in hours with some enhancement
The enhancement includes CASB Level 1 CT and Mobile X-Ray Service.
In addition, CASB Level 2 CT, General X-Ray

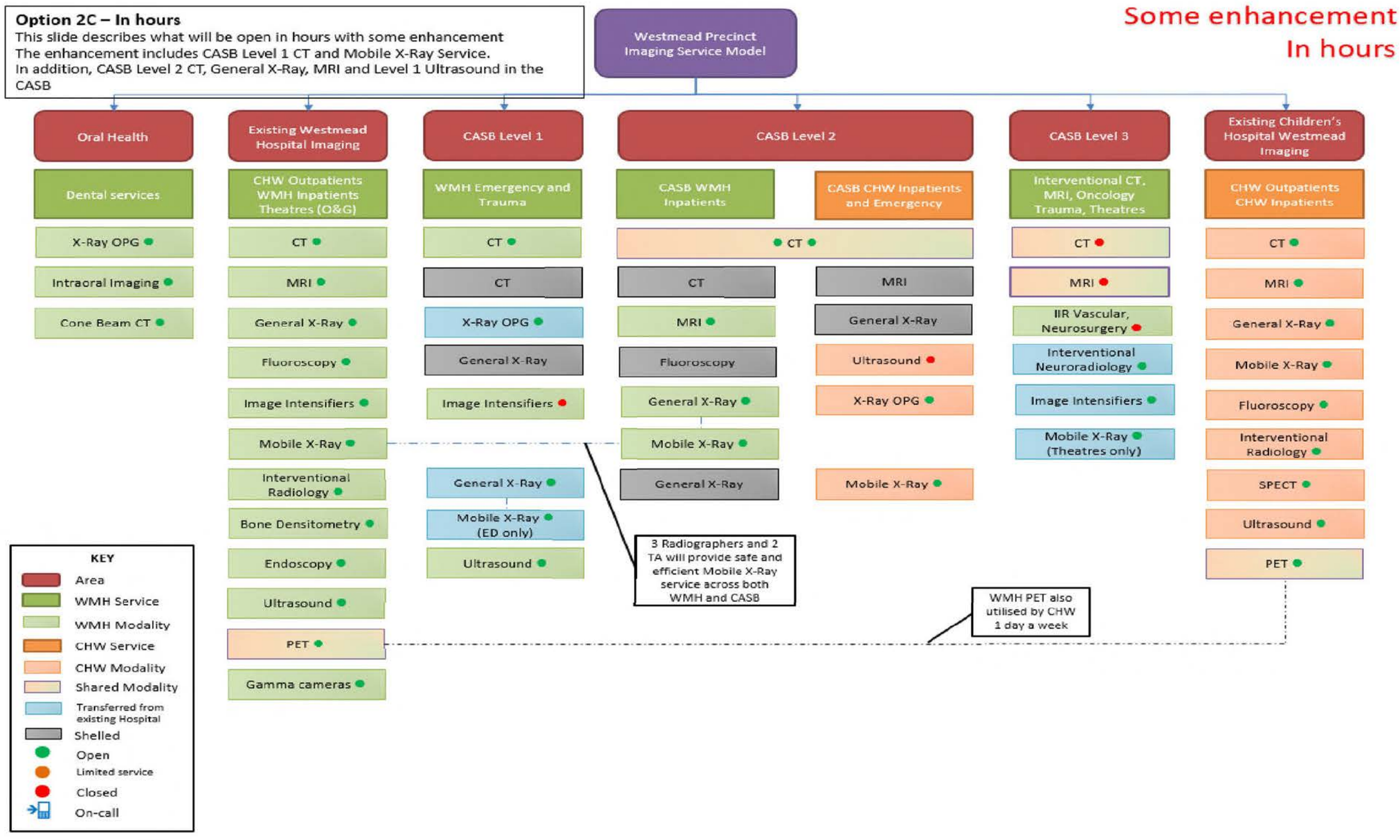
Some enhancement After hours



Service provision After Hours

Level 1 CT and existing CT services 24/7
Level 2 8am - 8pm, M - F 5 days a week
Enhanced mobiles service provision across 2 buildings
1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call)

22.4 Appendix 4: Detailed summary of Option 2C



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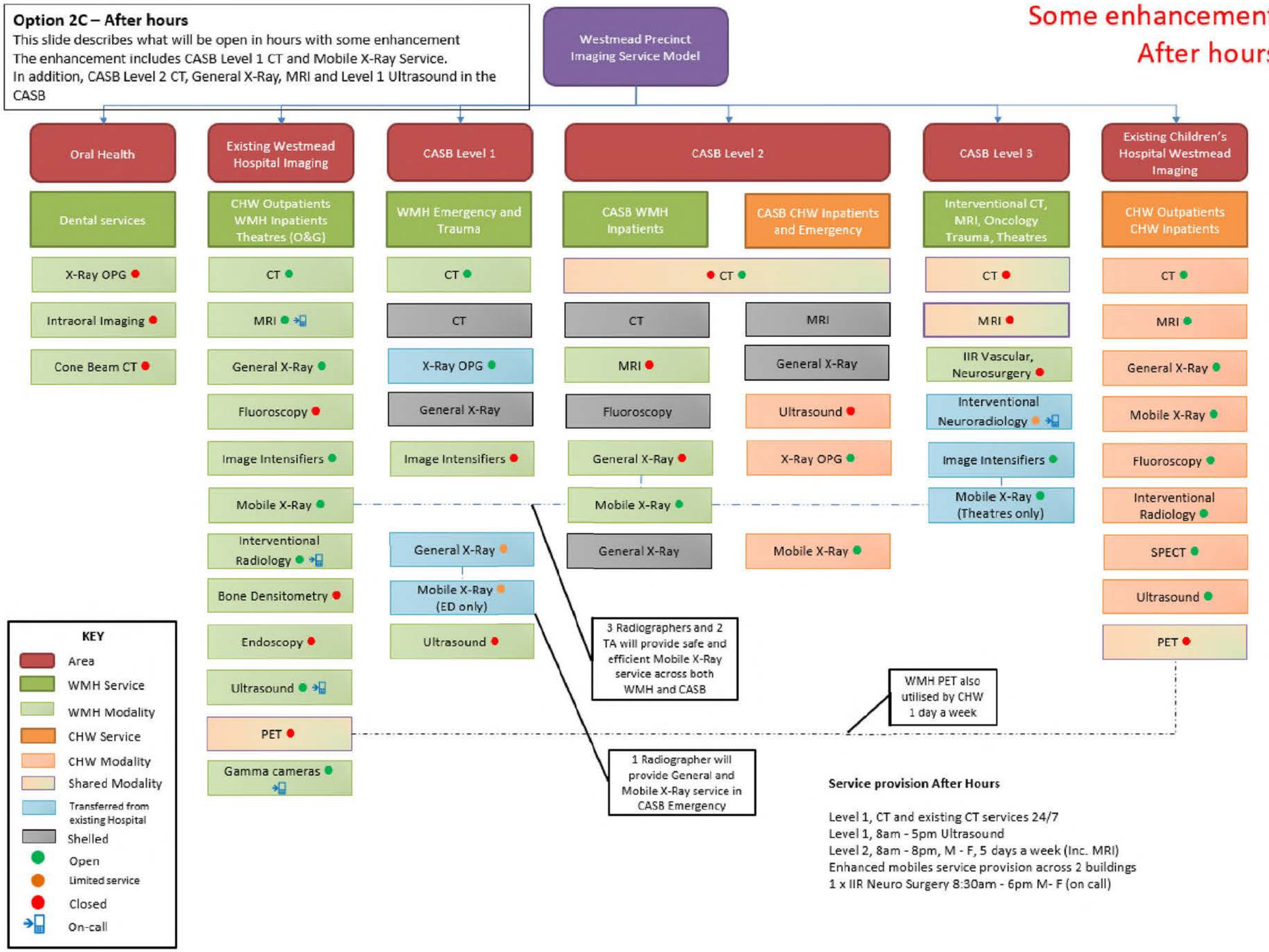
Option 2C – After hours
This slide describes what will be open in hours with some enhancement
The enhancement includes CASB Level 1 CT and Mobile X-Ray Service.
In addition, CASB Level 2 CT, General X-Ray, MRI and Level 1 Ultrasound in the CASB

Some enhancement After hours



Service provision After Hours

Level 1, CT and existing CT services 24/7
Level 1, 8am - 5pm Ultrasound
Level 2, 8am - 8pm, M - F, 5 days a week (Inc. MRI)
Enhanced mobiles service provision across 2 buildings
1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call)

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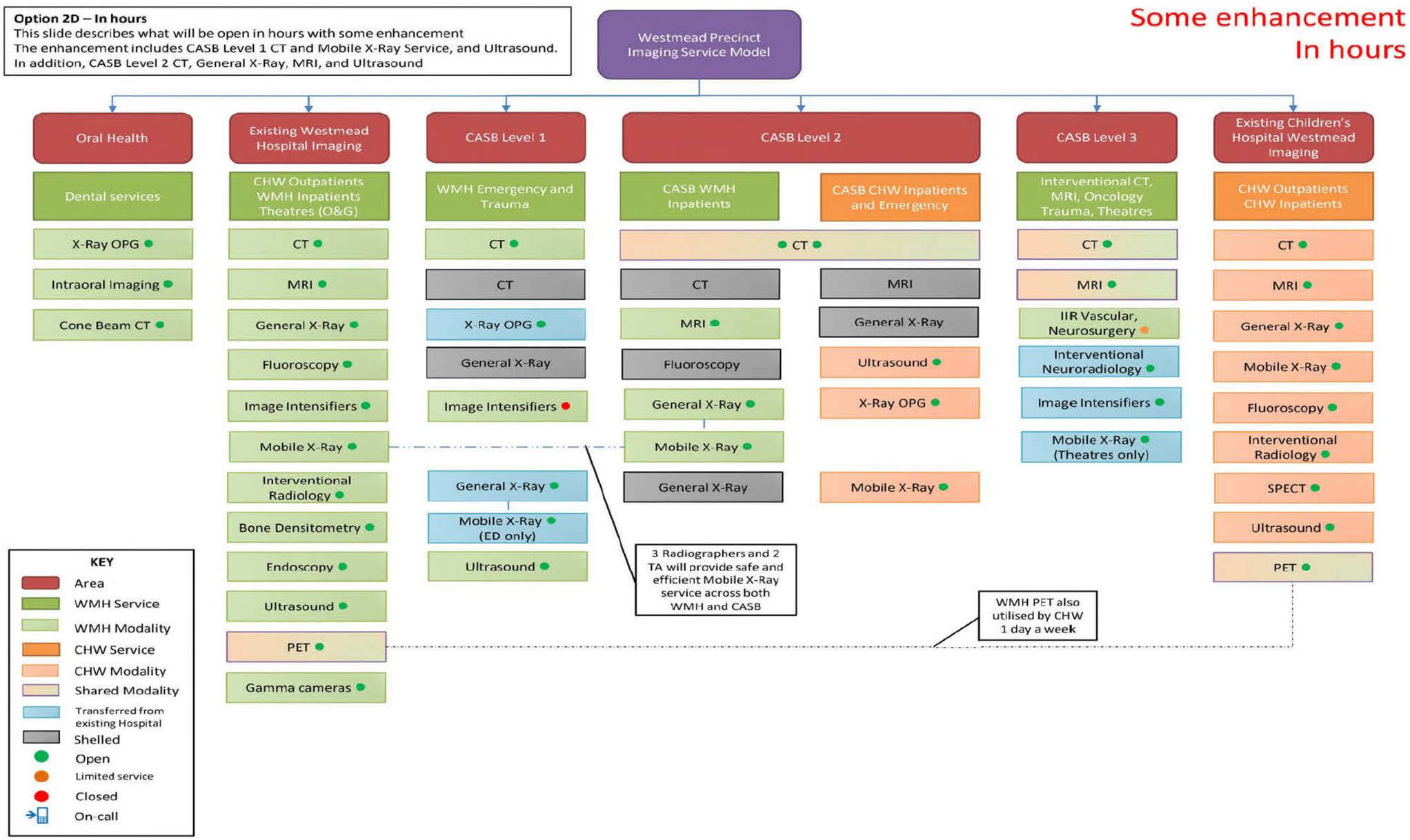
22.5 Appendix 5: Detailed Summary of Option 2D



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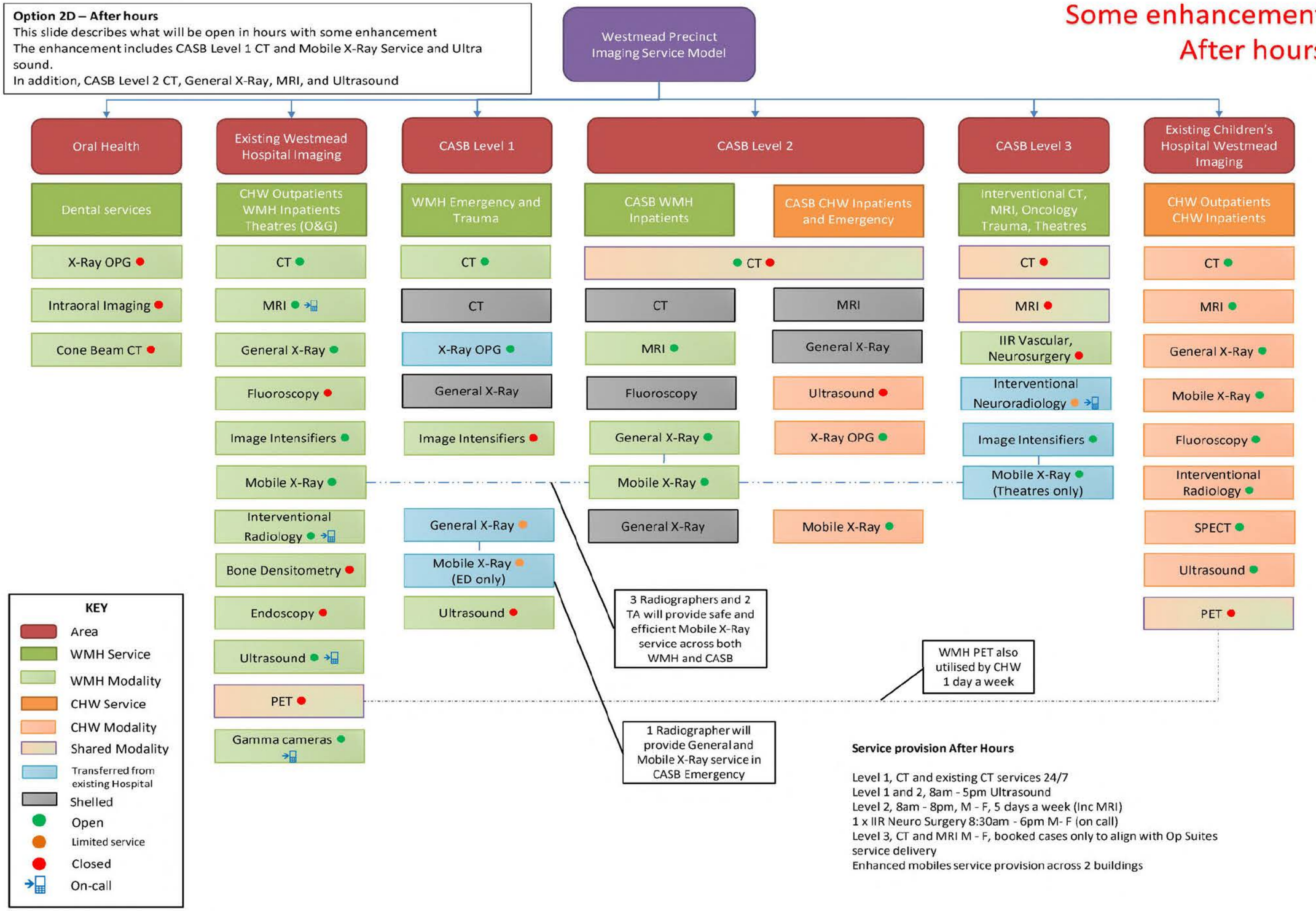
Option 2D – After hours
This slide describes what will be open in hours with some enhancement
The enhancement includes CASB Level 1 CT and Mobile X-Ray Service and Ultra sound.
In addition, CASB Level 2 CT, General X-Ray, MRI, and Ultrasound

Some enhancement After hours



Service provision After Hours

Level 1, CT and existing CT services 24/7
Level 1 and 2, 8am - 5pm Ultrasound
Level 2, 8am - 8pm, M - F, 5 days a week (Inc MRI)
1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call)
Level 3, CT and MRI M - F, booked cases only to align with Op Suites service delivery
Enhanced mobiles service provision across 2 buildings

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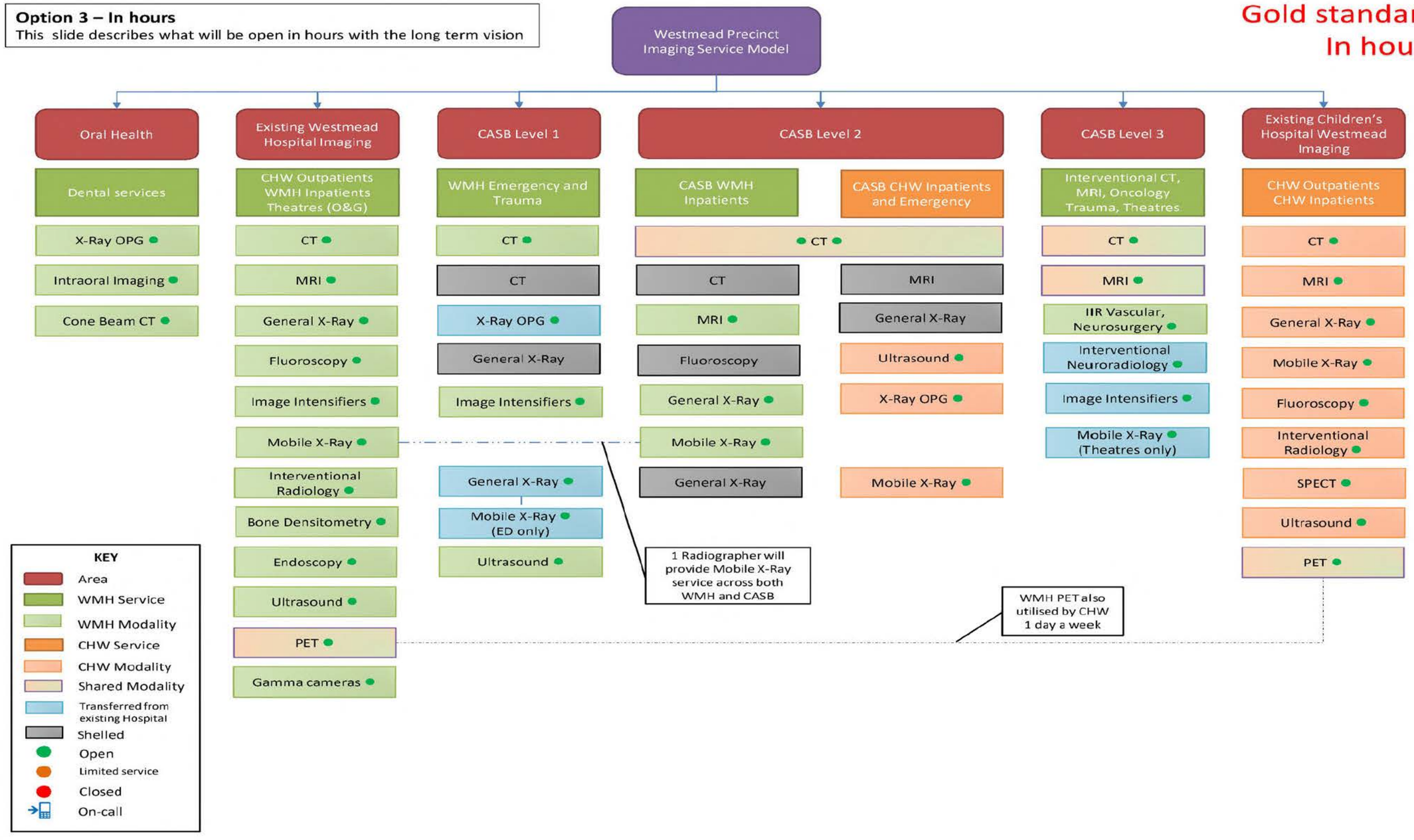
22.6 Appendix 6: Detailed Summary of Option 3

Option 3 – In hours
This slide describes what will be open in hours with the long term vision

Gold standard
In hours



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Option 3 – After hours
This slide describes what will be open in hours with the long term vision

Gold standard
After hours

Westmead Precinct Imaging Service Model

Oral Health	Existing Westmead Hospital Imaging	CASB Level 1	CASB Level 2		CASB Level 3	Existing Children's Hospital Westmead Imaging
Dental services	CHW Outpatients WMH Inpatients Theatres (O&G)	WMH Emergency and Trauma	CASB WMH Inpatients	CASB CHW Inpatients and Emergency	Interventional CT, MRI, Oncology Trauma, Theatres	CHW Outpatients CHW Inpatients
X-Ray OPG ●	CT ●	CT ●	● →📱 CT ● →📱		CT ● →📱	CT ●
Intraoral Imaging ●	MRI ● →📱	CT	CT	MRI	MRI ● →📱	MRI ●
Cone Beam CT ●	General X-Ray ●	X-Ray OPG ●	MRI ● →📱	General X-Ray	IIR Vascular, Neurosurgery ● →📱	General X-Ray ●
	Fluoroscopy ●	General X-Ray	Fluoroscopy	Ultrasound ●	Interventional Neuroradiology ● →📱	Mobile X-Ray ●
	Image Intensifiers ●	Image Intensifiers ●	General X-Ray ●	X-Ray OPG ●	Image Intensifiers ●	Fluoroscopy ●
	Mobile X-Ray ●		Mobile X-Ray ●		Mobile X-Ray ● (Theatres only)	Interventional Radiology ●
	Interventional Radiology ● →📱	General X-Ray ●	General X-Ray	Mobile X-Ray ●		SPECT ●
	Bone Densitometry ●	Mobile X-Ray ● (ED only)				Ultrasound ●
	Endoscopy ●	Ultrasound ●				PET ●
	Ultrasound ● →📱					
	PET ●					
	Gamma cameras ● →📱					

3 Radiographers and 2 TA will provide safe and efficient Mobile X-Ray service across both WMH and CASB

1 Radiographer will provide General and Mobile X-Ray service in CASB Emergency

WMH PET also utilised by CHW 1 day a week

KEY
- Area
- WMH Service
- WMH Modality
- CHW Service
- CHW Modality
- Shared Modality
- Transferred from existing Hospital
- Shelled
- Open
- Limited service
- Closed
- On-call

Service provision After Hours
Level 1, CT and existing CT services 24/7
Level 1 and 2, 8am - 5pm Ultrasound
Level 2, 8am - 8pm, M - F, 5 days a week (Inc. MRI)
1 x IIR Neuro Surgery 8:30am - 6pm M- F (on call)
Level 3, CT and MRI M - F, booked cases only to align with Op Suites service delivery
Enhanced mobiles service provision across 2 buildings
2x IIR Vascular 8:30 - 6pm M - F (on call)

22.7 Appendix 7: Medical Imaging Project User Groups Staffing Reccomendations By Modality

Medical Imaging recommend the minimum staffing requirement for the following modalities. ~~PUG has provided some recommended baseline staffing numbers by modality to assist as a guideline for the workforce strategy. It must be noted that the information below requires further analysis of staffing requirments to operationalise these modalities. A detailed workforce strategy is in development and a final recommendation will be made for consideration.~~

Minimum Recommended Staffing levels for CT and MRI, Ultrasound and Interventional Radiology Modalities

- When the CASB is commissioned, Imaging will be moving away from co-located modalities that enable sharing of staff between closely located modalities introducing new inefficiencies
- In order for KPI's to be assessed as per Section 19.2 below recommended staffing levels for CT and MRI are:
    - CT: each high-end CT's require the following staffing levels for each eight-hour shift
        - Clerical Staff: one during normal hours
        - Radiographers: two – one for acquiring images, the second for post-processing
        - Nursing: two (2) – one (1) for CT and one (1) for the Holding Bay area
        - SRMO's: one
        - Radiology Registrars: two
        - Radiologists: two
    - MRI:
        - Clerical Staff: one during normal hours
        - Radiographers: two – one for acquiring images, the second for post-processing
        - Nursing: one
        - SRMO's: one
        - Radiology Registrars: one
        - Fellow: one
        - Radiologists: 1.5
    - Interventional Radiography
        - In order to train a "pool" of Interventional Radiographers, a lead time for training of approximately 18 months is required
        - There will be competition for employing their services as there are limited numbers of trained positions in NSW, and we will be competing simultaneously with other LHD's for their services
        - Nursing complement as per ACCORN Standards – Nursing Staff to be provided by Theatre.
    - Ultrasound
        - Sonographers require a lead time for training of approximately 12 months
        - Retention is a major issue as once trained, their salaries in the external market are significantly higher than their Award remuneration

Lift and Shift Proposal

- CT: Westmead (comments also apply to staffing of the recent CT upgrade at Auburn)
    - The old 16-slice CT was replaced with a new high-end Siemens Force
    - The old 16-slice CT required one Radiographer / shift and one Radiologist / 24 hrs to report output
    - The replacement CT requires the staffing profile listed above: this was deleted from the Business Case when the purchase of the Siemens Force was approved, with instructions to run the new CT at an identical speed to the old CT. Clinical workload has not permitted such an instruction to be followed. That we have been able to run this CT to any extent is because it is co-located within the Dept 20 m away from the neighbouring CT
    - The net effect is that if a Lift and Shift Proposal was carried through for CT, as no staff were appointed to run the new CASB CT to its capacity, there are no staff available to transfer to the CASB. It is not feasible to run this machine concurrently with the other CT's given the distance that staff would have to travel to get to the CASB and back.
- MRI
    - A 3rd MRI was commissioned in the existing Department
    - The Business Case for the MRI required the staffing profile listed above: this was deleted from the Business Case when the purchase of the Siemens Prisma was approved. i.e. though the MRI was purchased, no staff to run the magnet was provided. That we have been able to run this MRI to any extent is because it is co-located within the Dept 10 m away from the neighbouring two MRI's

- The net effect is that if a Lift and Shift Proposal was carried through for MRI, as no staff were appointed to run the new CASB MRI to its capacity, there are no staff available to transfer to the CASB. It is not feasible to run this machine concurrently with the other MRI's given the distance that staff would have to travel to get to the CASB and back.

Orderly / Transport Assistance Service

- A major bottleneck within the Department is availability of Orderly Services
- Adequate provision of Orderlies or locally based Transport Assistants within the Department i.e. Main Dept, and each floor that CASB Radiology is operational is required to ensure a timely delivery of Service

Typists versus Voice Recognition (VR)

- The international literature demonstrates that requiring Radiologists and Registrars to utilise Voice Recognition (VR) software takes twice as long as utilising a Professional Typist: hence very few external Private Practices utilised VR
- In order to contribute to minimising the time to produce a Radiology Report, it is recommended that there is continued utilisation of Professional Typists within the Department

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22.8 Appendix 8: Floor Plans CASB Level 1

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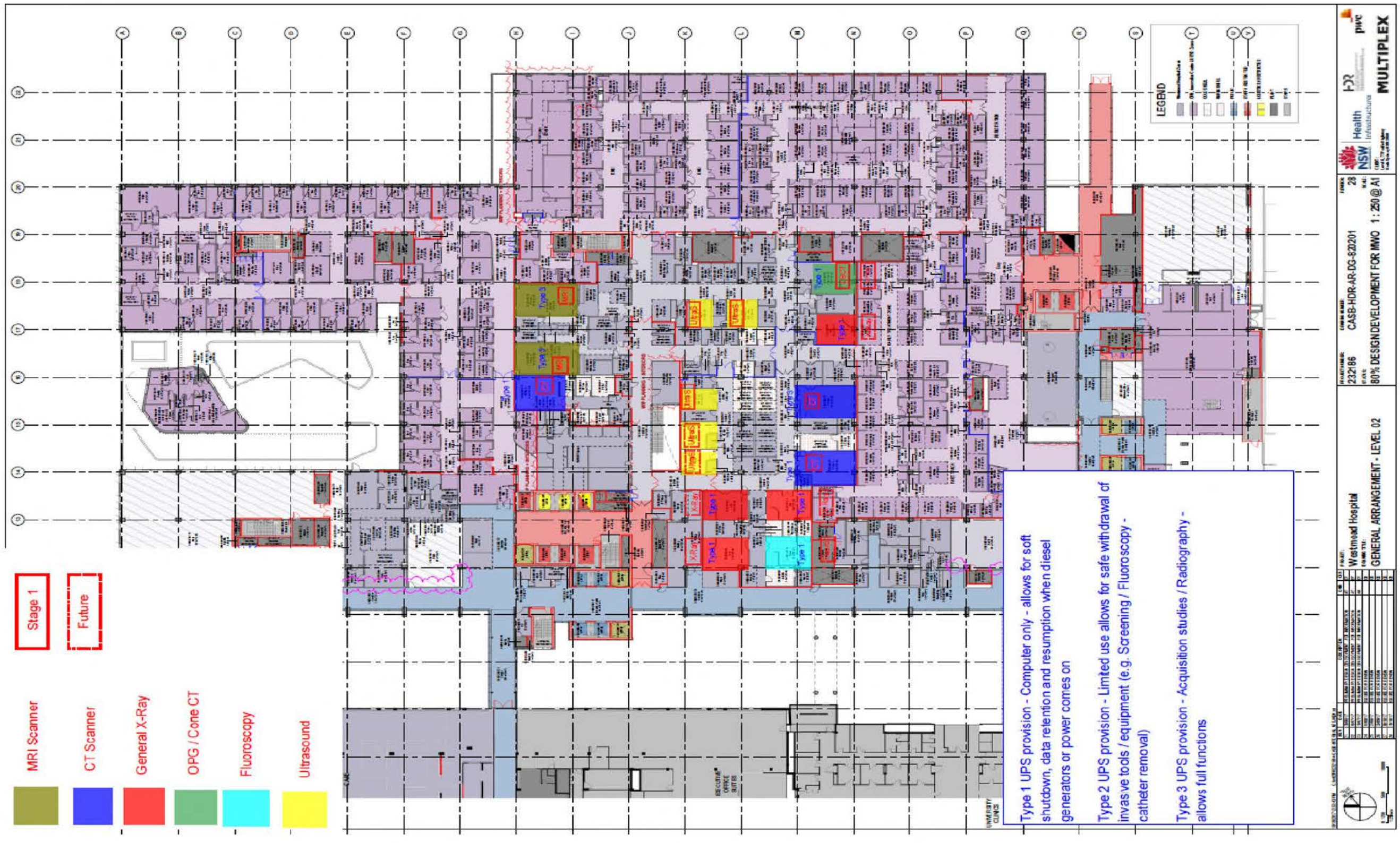
22.9 Appendix 9: Floor Plan CASB Level 2



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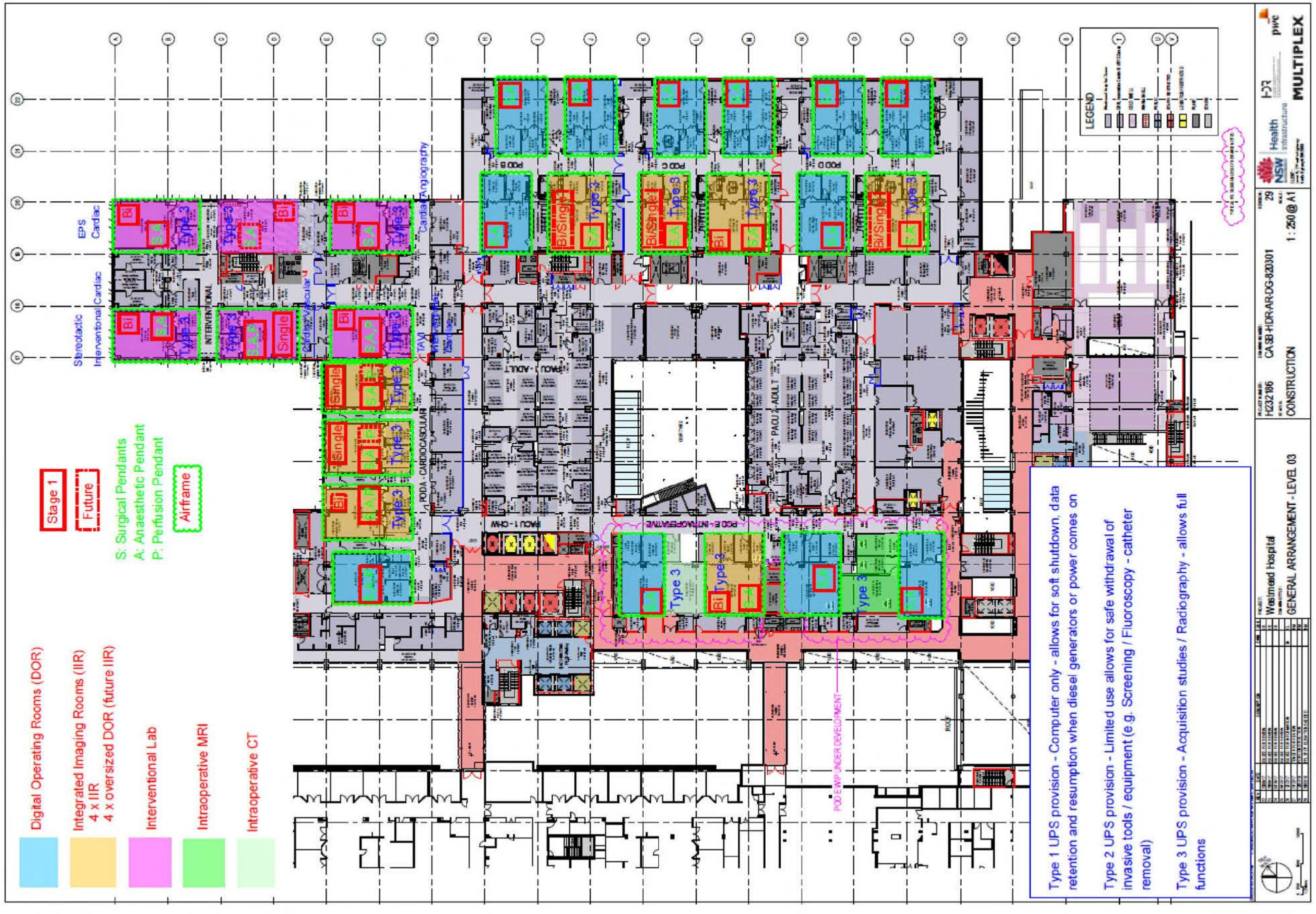
22.9.1 Appendix 10: Floor Plan CASB Level 3



TRAINEE COMPLETION LIST

TRAINEE	TRG YEAR	PATIENT SAFETY	REPORT WRITING MODULE	NON-MEDICAL EXPERT ROLE
Alexander Kirwan	1	Completed	18/03/2020	Completed
Cheng Yeo	1	Completed	23/3/2020	Completed
Mila Dimitrijevic	2	Most modules completed	23/03/2020	Most modules completed
Rueben Ganeshalingham	2	Completed	TIMS due 3/2/24	Completed
Eugene Ng	2	Completed	Completed	Completed
Jing Zhou	2	TBA	TIMS due 3/2/24	TBA
Jeewaka Mohotti	3	Completed	Completed	Completed
Jia Lin Chua	3	Most modules completed	TIMS due 4/2/23	Most modules completed
Sam Conyngham	4	Completed	Completed	Completed
Nandu Dantan	4	TBA	TIMS due 27/11/21	TBA
Rebecca Lim	4	Completed	Completed	Completed
Ismail Goolam	5	TBA	TIMS due 1/2/21	TBA
Amos Lau	5	Most modules completed	TIMS due 31/1/21	Most modules completed
Jeff Wang – non network	5	TBA	Not specified on TIMS	TBA
Amy Khoo	7	Most modules completed	Not specified on TIMS	Most modules completed