



MELBOURNE HEALTH

Improving Inpatient and Outpatient access to CT services at The Royal Melbourne Hospital.

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Background

- Improvement project commenced in 2007.
- CT Improvement Group had wide Membership representation (4 x Radiographers, 2 x Office staff, 1 x Nurse, 1 Radiologist, Operations Manager, MH Improvement Officer).

Aim

- To identify and implement sustainable improvement initiatives that would reduce the average waiting time for RMH inpatients and outpatients to access CT services.
- Current waiting time for a non-urgent Outpatient CT case **was 12 weeks.**



Opportunities for improvement

- High DNA rate.
- High rate of booking errors.
- High rate of cancellations or delays due to incorrect patient preparation (especially missing blood test results).
- Delays waiting for a radiologist to inject IV contrast.
- Default appointment times not adjusted to type of scan.
- Challenge established work practises across 3 scanners.
- Significant delays transporting patients from ED or the Wards to Radiology after 5 PM



4 Key improvements implemented



1. Introduction of new dedicated CT request card.

MEDICAL UNIT	WARD OR O.P.	WALK CHAIR	TROLLEY MOBILE UNIT	(USE PATIENT IDENTIFICATION LABELS WHERE POSSIBLE)		
REGION TO BE EXAMINED OR EXAMINATION REQUIRED		TODAY'S DATE	SURNAME		GIVEN NAME	SEX
DATE OF EXAMINATION		UNIT NO.	BIRTH DATE	CLASSIFICATION	X-RAY No.	
(FOR CAS. PATIENTS ONLY) TIME OF ARRIVAL -						
CLINICAL NOTES AND DIAGNOSIS INCLUDING DURATION OF COMPLAINT				PREFERRED DATE / MONTH OF EXAMINATION (referrer to complete for an outpatient request only)		
DOES THIS PATIENT REQUIRE AN INTERPRETER? YES / NO HAS IT BEEN ORGANISED? YES / NO				<input type="checkbox"/> Next available OR Month / Year.....		
REQUESTING DOCTOR INFORMATION			FOR OFFICE USE ONLY		INTERNAL USE ONLY	
DOCTOR SURNAME _____ INITIALS _____					Patient Signature	
DOCTOR SIGNATURE _____					Date: ____ / ____ / ____ I elect to be bulk billed for this episode of care	
PROVIDER # _____					RADIOGRAPHER	
PAGER # _____					REGION	
DATE ____ / ____ / ____			M.A.		TIME	
PLEASE NOTE THAT ALL RADIOLOGY REQUESTS MUST BE WRITTEN AND SIGNED BY REQUESTING DOCTOR			K.V.			

Generic X-ray form



New Dedicated CT Request



CT REQUEST

All sections must be completed for the referral to be accepted.

Department of Radiology

Phone: 8942 8801
8942 8877
8942 8888

Patient Checklist / Questionnaire If an inpatient request, please cannulate the patient before the test (left or right cubital fossa 20G). Has the patient had a past reaction/allergy to contrast? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is the patient pregnant? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Does the patient have renal disease? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is the patient diabetic? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is the patient taking metformin? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Does the patient require an interpreter? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If YES language?..... All patients requiring IV contrast require an eGFR within 3 months (see RMH Contrast Induced Nephropathy (CIN) Guidelines overleaf for eGFR <30 and eGFR 30 – 60) Does the patient require an eGFR? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No eGFR: Have arrangements been made for inpatient pre-hydration? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Date of test:	
RADIOLOGY USE ONLY	
Examination Protocol: CTA Chest	
Contrast Order: Date of referral:/...../..... Volume 100 Signed: Pre Procedure Instructions:	Agent: OMNIPAQUE 350 / ULTRAVIST 370 mls/sec: 4 Post Procedure Instructions:

Patient Details (Use patient identification label) Surname: _____ (Given Name(s)) _____ Address: _____ Date of Birth:/...../..... M/F: _____ Male <input type="checkbox"/> Female <input type="checkbox"/> Classification: _____		Ward: OP: _____ Preferred Date/Month of Examination (in): _____ <input type="checkbox"/> Next Available OR Months/Year: _____ Appointment Details (Radiology to complete) Date: Time:
Examination and Region Clinical Details (Describe procedure required, including location of any lesion)		
Referring Doctor Details Name: _____ Medical Unit: _____ Provider No.: _____ Pager: _____ Signature: _____ Date: _____	Copy Report to: _____ Fax no: _____	
Patient Checklist / Questionnaire If an inpatient request, please cannulate the patient before the test (left or right cubital fossa 20G). Has the patient had a past reaction/allergy to contrast? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the patient pregnant? <input type="checkbox"/> Yes <input type="checkbox"/> No Does the patient have renal disease? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the patient diabetic? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the patient taking metformin? <input type="checkbox"/> Yes <input type="checkbox"/> No Does the patient require an interpreter? <input type="checkbox"/> Yes <input type="checkbox"/> No If YES language?..... All patients requiring IV contrast require an eGFR within 3 months (see RMH Contrast Induced Nephropathy (CIN) Guidelines overleaf for eGFR <30 and eGFR 30 – 60) Does the patient require an eGFR? <input type="checkbox"/> Yes <input type="checkbox"/> No eGFR: Have arrangements been made for inpatient pre-hydration? <input type="checkbox"/> Yes <input type="checkbox"/> No Date of test:		
RADIOLOGY USE ONLY		
Examination Protocol:		
Contrast Order: Date of referral:/...../..... Volume _____ Signed: Pre Procedure Instructions:	Agent: OMNIPAQUE 350 / ULTRAVIST 370 mls/sec: _____ Post Procedure Instructions:	
Contrast Administration: Administered by: _____ Checked by: _____	Scan Performed by: Initials: _____	



Impact of new dedicated CT Request

- ✓ Radiographer can now administer IV contrast without having to wait for the Radiologist to be available.
- ✓ Radiologist / Registrar productivity has increased by being able to protocol the request in advance of the appointment.
- ✓ Reduction in the frequency of delays or cancellations at the time of the CT appointment due to incorrect patient preparation or blood test results not being available.



2. Implementation of a new CT booking process.

- A major change initiative that has significantly improved access.
- Detailed process mapping of the booking process for CT was undertaken.



Summary of New CT booking process & impact

Steps in the booking process	Previous System	New System	Outcome
<i>CT Card received</i>	<ul style="list-style-type: none"> - Receptionist interpret request - Seek advise if required 	<ul style="list-style-type: none"> - Receptionist checks all the required information has been provided on the dedicated CT request. - Request card forwarded to Radiologist for protocolling 	<ul style="list-style-type: none"> - Reduction in booking errors.
<i>Appointment allocated</i>	<ul style="list-style-type: none"> - Next available CT appointment given. - Letter sent in the mail 	<ul style="list-style-type: none"> - Letter sent in the mail requesting the patient phone to make an appointment. - Appointment granted only when the patient calls 	<ul style="list-style-type: none"> - Improved customer service - Reduction in DNA rates
<i>Patient preparation instructions</i>	<ul style="list-style-type: none"> - Generic CT instructions sent with appointment letter 	<ul style="list-style-type: none"> - Specific CT instructions generated. - Decision Support program 	<ul style="list-style-type: none"> - Reduction in cancellations due to incorrect patient preparation. - Quality of the service improved.
<i>Patient arrive</i>	<ul style="list-style-type: none"> - Radiologist protocolled request - Radiologist supervise IV contrast 	<ul style="list-style-type: none"> - Radiographer performs examination as per protocol - IV contrast can be administered without Radiologist 	<ul style="list-style-type: none"> - Reduction in cancellations or delays due to incorrect patient preparation. - Improved productivity.
<i>Patient DNA</i>	<ul style="list-style-type: none"> - Card kept in case patient calls to arrange a new appointment. 	<ul style="list-style-type: none"> - Formal follow up process with patient. - Referrer notified after 2 DNA 	<ul style="list-style-type: none"> - Quality of the service improved.

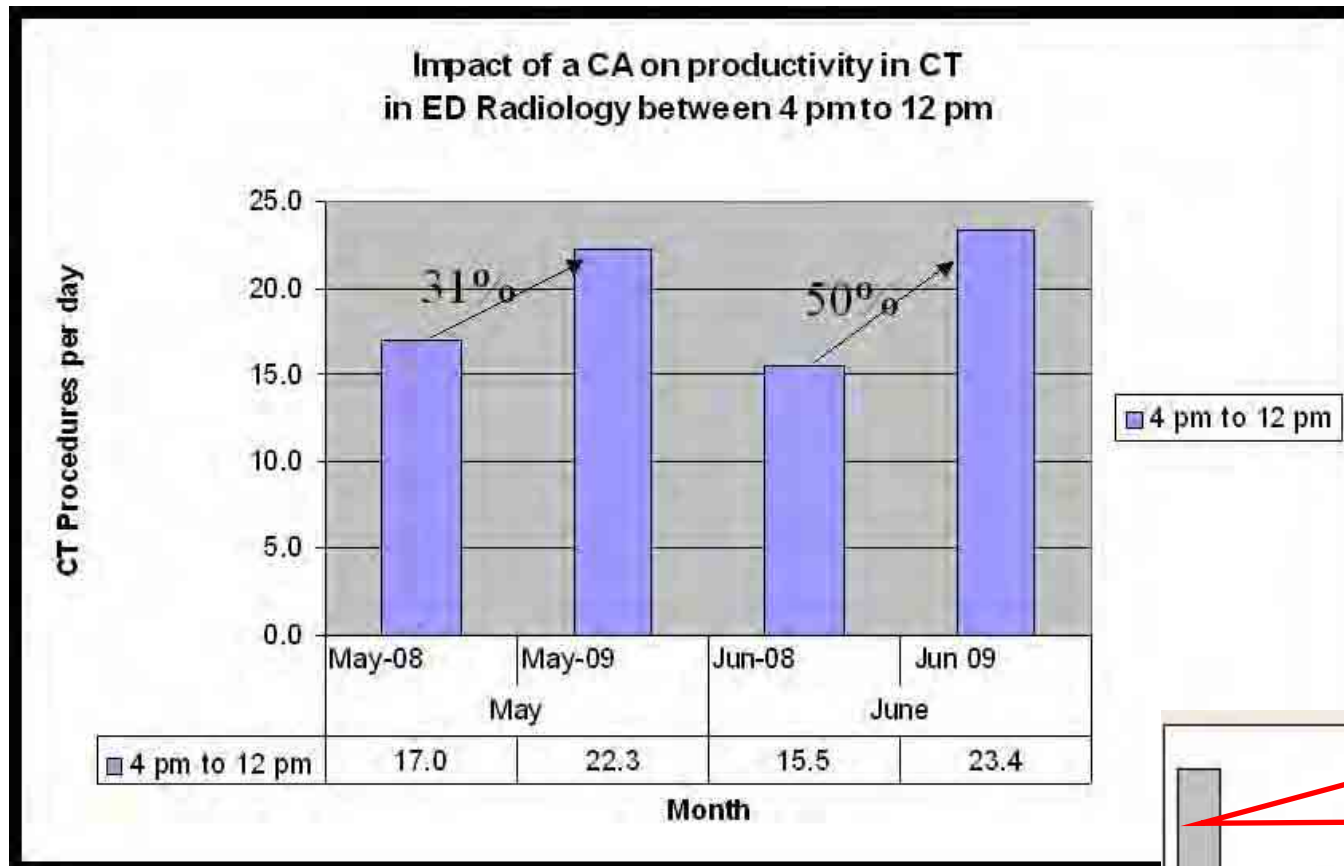


3. Adjustments to the CT booking template

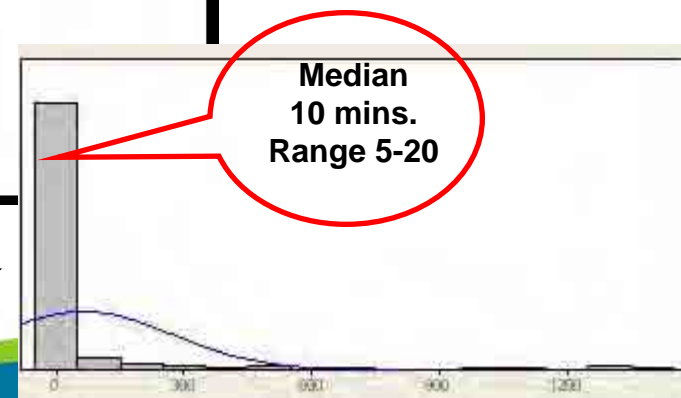
- Challenged established practise for scheduling taking into account:
 - Advances in technology (reduction in scanning time).
 - Best practise at other Radiology sites.
 - Impact of improvements being made to reduce inefficiencies or delays (for example dedicated CT request and new booking process)
- Some key changes made.
 - The default booking time for all non-contrast cases was reduced from 30 to 15 minutes.
 - Four outpatient cases now routinely booked first thing in the morning on the main Radiology CT before inpatient cases could be transported from the ward.
 - Change in ED policy for accessing the CT scanner for trauma cases.



4. Impact of after hours CA on Radiology productivity

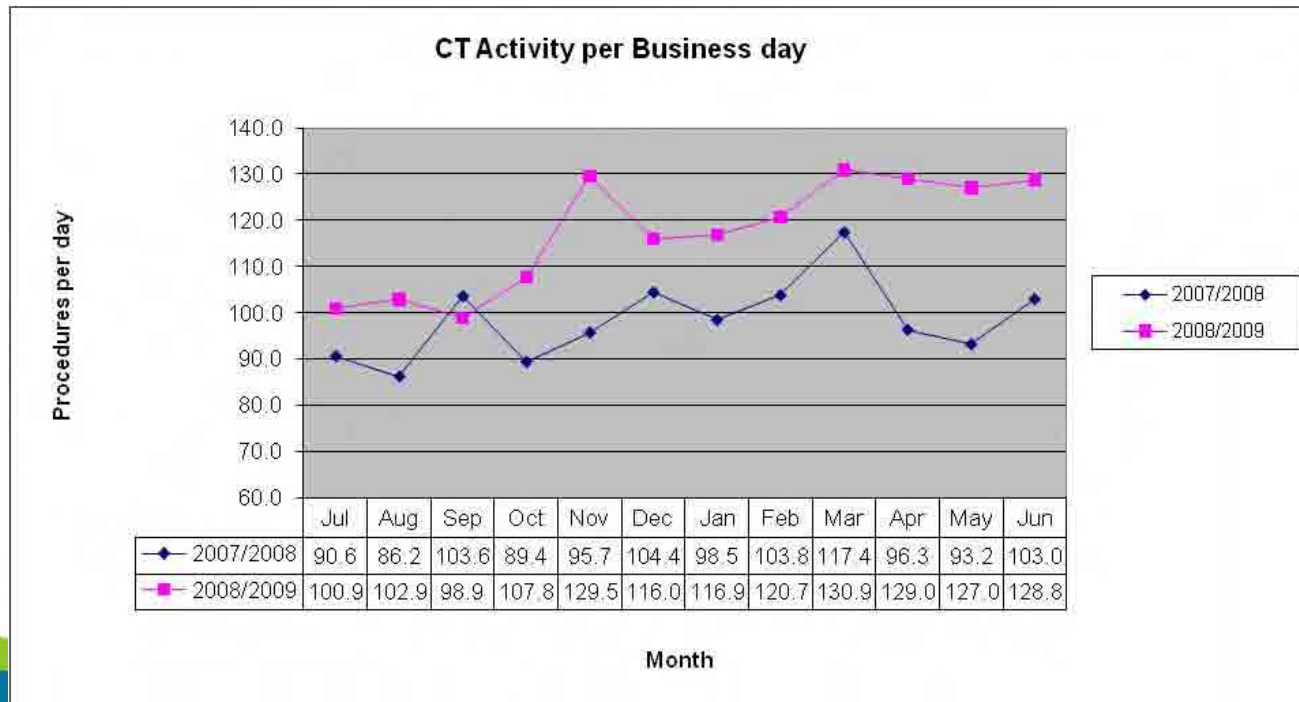


Median time to transport a patient from ED to CT in July/August 09



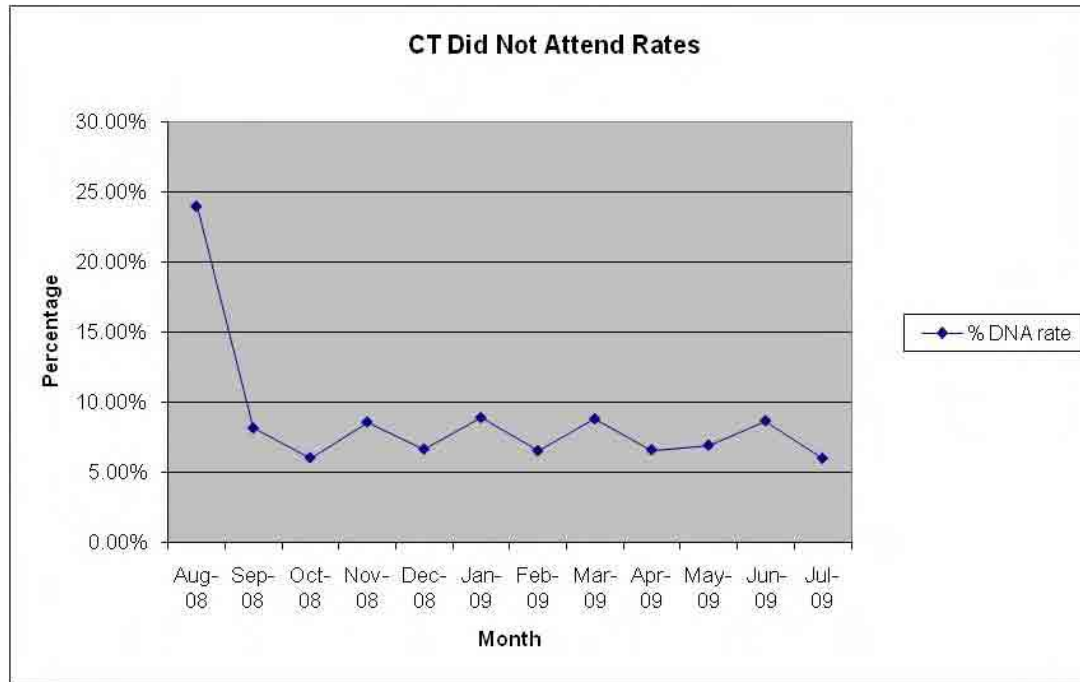
Overall Impact of changes

1. Waiting lists for non-urgent CT outpatient appointments reduced from **12 weeks** to less than **2 weeks**.
2. 19% increase in activity in 2008/2009 compared to 2007/2008.



Overall impact of changes

3. DNA rates reduced from 25 per cent to approximately 8%.



4. Improved ED and Inpatient access to CT services after-hours.

5. Overall quality of CT services has improved significantly for both inpatients and outpatients.



CT Improvement Sub-Group members over last 2 years

(in first name alphabetical order)

Craig Roberts, Damien Stella, Fiona Watson, Fran Langenberg,
Frances Corstorphan, Katrina Lane, Kirsten Connolly, John Lavan,
Megan Dwyer, Lisa McKenzie, Patrick Hines, Peter Nuttman,
Rhonda Neil, Shona Robertson, Simon Olden, Sylvia Augustinovic,
Stuart Baum, Vicki Dickinson

Thank You

