



Australian Government
**Australian Radiation Protection
and Nuclear Safety Agency**



ACDS

Australian Clinical Dosimetry Service

The ACDS has risen to the challenge of adapting to COVID-19 and is providing full service delivery despite travel and quarantine restrictions.

UPDATE

By the numbers



For the **2020 YTD**, we've completed:

42 Level I audits

20 Level Ib audits

10 Level II audits

22 Level III audits

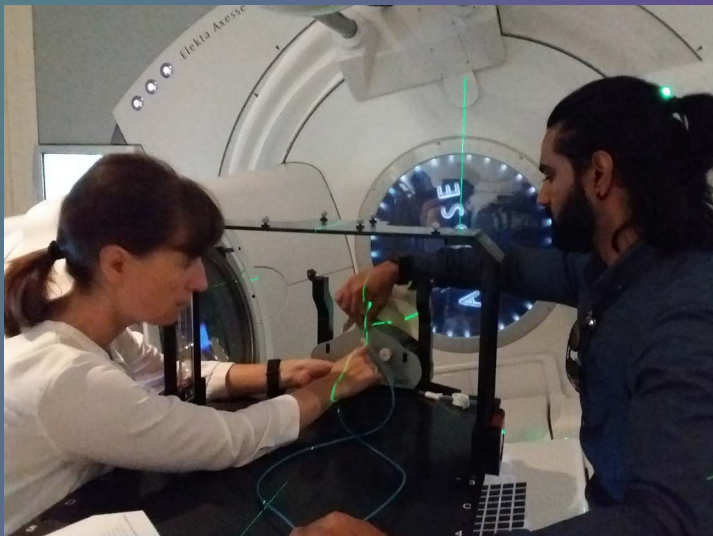
Audit development

Behind the scenes, ACDS are working on the development of new audits in response to the evolution of clinical practice. Through facility audit field trials, ACDS refine processes and gather data to determine measurement uncertainties and scoring criteria. We are grateful to all facilities that undertake field-trials. Without your participation, audit development would not be possible.

The SABR audit is an example of a mature field trial which will soon 'go live' following 61 facility trials. The SRS audit is another mature field trial, with 8 facility trials performed.

The development of an audit for MR Linacs and online adaptive radiotherapy is underway. ACDS has completed emergent field-trial audits of Australia's first two Elekta Unity MR-Linacs and a Varian Ethos.

The ACDS team is currently working with Alex Burton, an RMIT PhD student to develop a motion management field trial. ACDS is launching a survey in November to determine the technologies in clinical use in Australian and New Zealand centres. This survey will provide essential information enabling ACDS to develop an audit for our local context. The results will be de-identified. We encourage you all to participate.



Top: Rhonda Brown, currently acting in the Director, ACDS role performing the online adaptive audit on an Elekta Unity MR-Linac with Jessica Lye.

Bottom: Cate Davey and Fayz Kadeer setting up for SRS cranial audit.

Audit status

		Conventional (WFF)	Conventional (FFF)	Conventional (electrons)	Halcyon, Ethos	MR-Linac	Tomotherapy	Cyberknife	Superficial/orthovoltage	Gammaknife	Protons
Level I	Reference fields	✓	✓	✓	✓	★	✓	✓	✓		●
Level Ib	Reference fields	✓	✓	✓	✓	✓	✓	✓	✓	★	★
	Small fields	✓	✓		✓	▲	✓	✓		★	
Level II	3DCRT	✓	✓			●					
	IMRT/VMAT	✓	✓		✓	●					
Level III	3DCRT	✓	✓			▲					●
	IMRT/VMAT	✓	✓		✓	▲	✓	✓			●
	Adaptive	★	★		▲	▲	▲	★			●
	Motion Adaptive	★	★		★	★	★	★			●
	SABR soft tissue	✓	✓		✓	▲	✓	✓			●
	SABR lung	✓	✓		✓	▲	✓	✓			●
	SABR spine	✓	✓		✓	▲	✓	✓			●
SRS cranial	✓	✓		✓	★	✓	✓		★	●	



Live



Mature field trial



Emergent field trial



In development



Future

Research and education

Fayz Kadeer, a Clinical Auditor in our ACDS team is investigating a trend seen in organ at risk (OAR) dose prediction. Fayz recently presented on the topic of 'Monte Carlo investigation on the effect of penumbra modelling on OAR dosimetry' at the 2020 Engineering and Physical Sciences in Medicine (EPSM) Conference.

The ACDS is currently supporting two IT projects at Melbourne University. We're working together with a team of students to develop a database for the Australia and New Zealand Dataset which is used to report comparative audit outcomes. Another team of students is creating a software program that can extract plan data parameters from a DICOM file and then verify that these components are within ACDS criteria.

ACDS continues to support the professional development of radiation therapists. Level II and Level III audits are now accredited for ASMIRT appellation and are part of the ASMIRT CPD program. Involvement in the audit treatment planning or treatment delivery results in an accrual of 9.375 CPD points for radiation therapists, acknowledging the ACDS audit as a learning activity.

We are also engaging with the next generation of radiation therapists, with Cate Davey, an ACDS Audit Support Officer delivering a virtual information session on career opportunities to medical radiation undergraduate students at RMIT. Pre-lockdown, Cate and Senior Radiation Scientist from the Primary Standards team, Chris Oliver, also spent time with Monash University students providing a hands-on learning experience on the Versa HD Linac.

Recent presentations delivered by ARPANSA's Medical Radiations branch staff, including the ACDS, are accessible on our [YouTube channel](#).

Delivering services to industry

3dOne – ACDS performed independent verification of materials used for electron cut-outs that have been produced in a virtual mould room.



Staffing updates

The ACDS team recently welcomed:



Dr Sabeena Beveridge

Radiation Oncology Medical
Physicist – Research ROMP



Katherine Collins

Medical Physicist – Audit
Support Officer



Katherine Metzger

Radiation Therapist – Business
Development Manager



Dr Lloyd Smyth

Radiation Therapist –
Audit Support Officer



After 10 years with the Primary Standards Dosimetry Laboratory and ACDS, Jessica Lye has moved on from ARPANSA as a radiation oncology registrar at the Olivia Newton-John Cancer Wellness & Research Centre. Jess' commitment to research, development and publication has imbued the service with a reputation for scientific integrity and rigour both throughout Australia and internationally. Rhonda Brown is currently acting in the ACDS Director role.

Caption: Ivan Williams, Chief Medical Radiation Scientist and Branch Head, Medical Radiation Services at ARPANSA, presents Jess with her farewell gift from the Medical Radiation Services team.

On 9 November 2020, we celebrated 10 years since the inception of our ACDS. Next year we will formally recognise 10 years of clinical operations, auditing and development.