

Case Study 1



The Australian Clinical Dosimetry Service

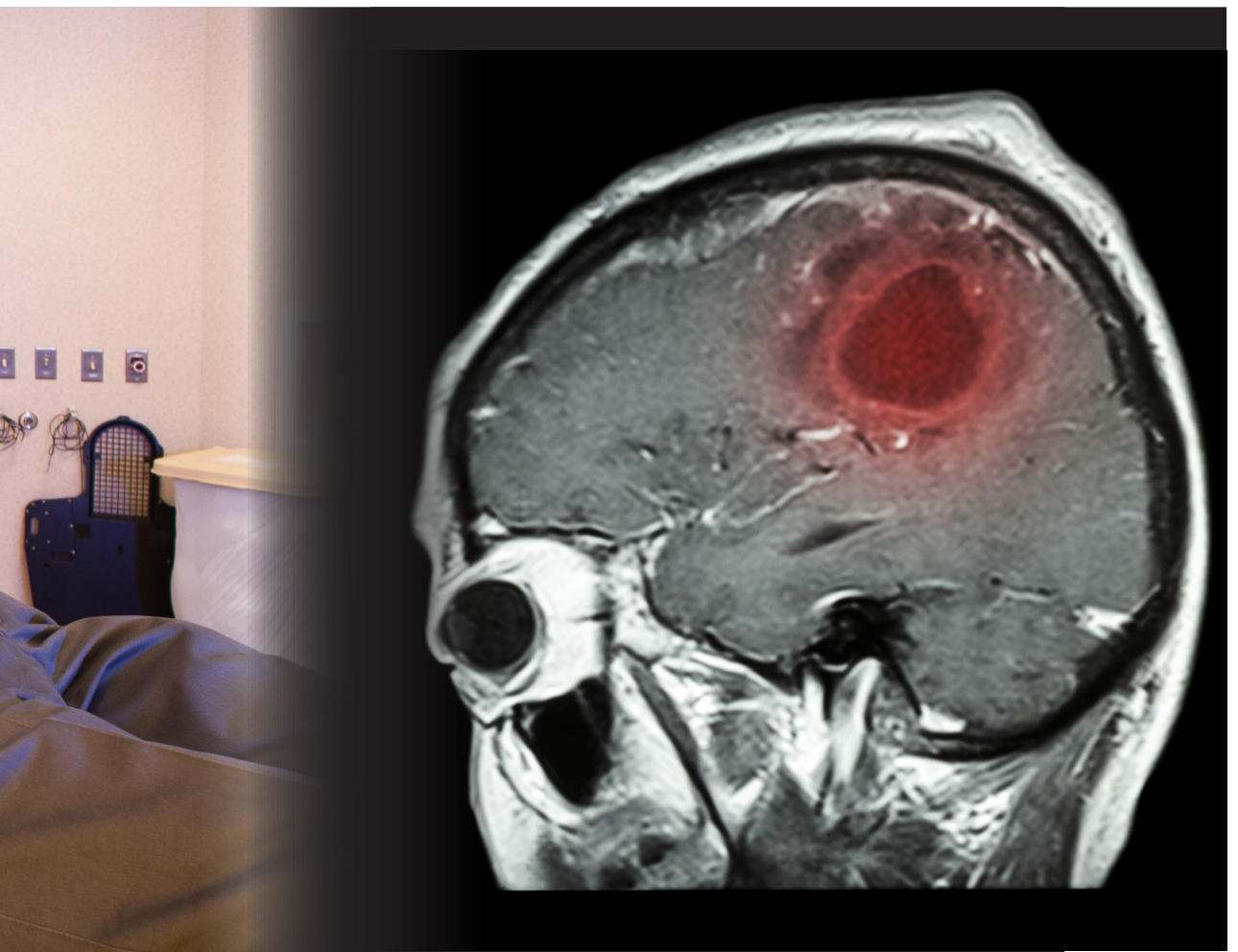
The Australian Clinical Dosimetry Service (ACDS) is the national independent dosimetry auditing pilot program ensuring assurance and safety for radiation oncology providers and patients. Operating over five years with 100 per cent national participation, the ACDS has developed a four level audit program.

METHODS AND MATERIALS

Audit outcomes are based on the difference between the radiation dose predicted by the facility, and that measured by the ACDS. Audit outcomes have been used to directly advise clinics about equipment or practice. In addition to this immediate outcome, five years of auditing data has enabled the ACDS to construct a National Data Set for each audit. The data is continually analysed against chronological drift, equipment type and any statistic which becomes pertinent. The information enables the ACDS to inform clinics whether their audit outcomes match the expected behaviour, or not. Such information, opaque to individual facilities, ensures patient safety and greatly assists equipment commissioning for providers.

RESULTS

Over 80 recommendations have been made to 60 treatment facilities based on initial audit findings. More subtle trends across multiple audits required analysis of more audit outcomes. The first attempt to employ multi-facility analysis was triggered by an unexpected 6 per cent difference between a facility prediction and ACDS measurement for asymmetrically delivered radiation fields employing a 60° wedged field. The relevant audit tests were tracked over a year and found that many clinical facilities had a similar problem, three of which conducted two year historical reviews of patient treatments. No patients were found to have been mis-treated.



Recently an ACDS investigation reviewed the dosimetry of a multi-site provider and identified a dose inaccuracy ~ 2 per cent. A report with the supporting data was conveyed to the provider who immediately replaced their reference dosimetry equipment. The next audit indicated that the 2 per cent inaccuracy was largely corrected.

The more complex ACDS audit measurements are now being used to produce a 'characteristic' outcome for equipment combinations across Australia. This tool shows to an auditee the national trend for the equipment which they operate, for each ACDS audit. The characteristic is being used by providers across Australia to review both their own audit outcome and their commissioning data against the National Dataset.