

# Implementation of Stereotactic Ablative Body Radiotherapy (SABR) and utilization of Intensity Modulated Radiation Therapy (IMRT) and Volumetric Modulated Arc Therapy (VMAT) at Central West Cancer Care Centre (CWCCC) Orange NSW

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## Aim Statement:

Increase IMRT/VMAT utilization rate to 65% from less than 20% in 2017 and to make SABR treatment available at CWCCC within 18 Month

## Background to problem worth solving

At CWCCC the utilization rate of Intensity-Modulated Radiotherapy (IMRT) and Volumetric Modulated Arc Therapy (VMAT) was less than 20% in 2017, which is significantly lower compared to other NSW public health services

Stereotactic Ablative Body Radiotherapy (SABR) treatment was not available at CWCCC. Patients are required to travel long distance for SABR treatment

## What is already known on the subject?

Radiotherapy is an important part of cancer treatment

Cancer patients in remote areas experience poorer outcomes than their metropolitan counterparts

Travel is a key barrier to access radiotherapy treatments

## National Standard or Strategic Imperative

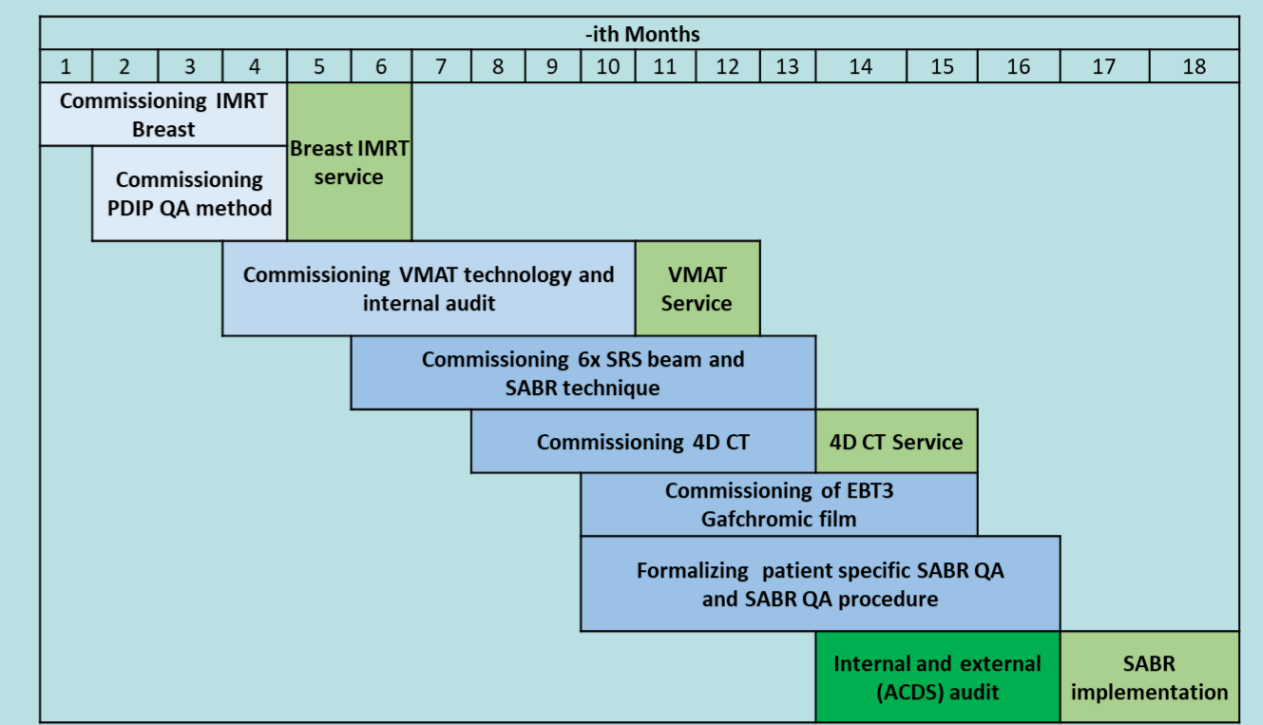
- Right Care in the Right Place at the Right time
- NSW Rural health plan towards 2021
- NSW health Strategic Health Services Plan 2016-2020
- NSW Non-Surgical Cancer Services Framework, 2014-2016
- Royal Australia New Zealand College of radiology (RANZCR) Techniques and technologies in Radiation Oncology 2019
- Professional conduct/Code of ethics of ACPSEM

Project Team Leader: Dr. Dilli Banjade

## Team members

- |                            |                  |
|----------------------------|------------------|
| Dr. Kandeepan Thuraisingam | Mr. Ajeet Mishra |
| Mr. Rodney Hammond         | Ms. Amy Renshaw  |
| Dr. Shiw Juen (Eugene) Tan | Mr. Ben Newham   |
| Prof. Graham Stevens       | Dr. George Warr  |

## Project timeline



## Sponsor

- Orange Health Service management team
- Radiation Oncology management Group

## Consumer

- Radiation Oncology team and patients

## Driver Diagram

### The Problem:

Low utilization of IMRT/VMAT technology <20% (compared to average of 56% and maximum of 70% in NSW public hospitals). No SABR treatment available in WNSW region

**Aim:**  
Within 12 Months, IMRT/VMAT utilization rate to be above 65% and SABR treatment will be available within 18 Months

### Outcome Measure:

- Implementation of VMAT treatment and Breast IMRT treatment
- Implementation of SABR treatment
- IMRT/VMAT utilization rate increase to optimum level
- Patients are not required to travel metropolitan centre for most of the advanced radiotherapy

### Primary Drivers

- Western NSW cancer patients are not able to access advanced radiotherapy treatment locally
  - WNSW patients will get access of breast IMRT, VMAT and SABR treatment locally within 18 Months
- No Breast IMRT, VMAT and SABR treatment technology available at CWCCC
  - Process Measure: IMRT for breast within 4 months and VMAT for all sites within 12 months and SABR treatment within 18 Months
- IMRT utilization rate at CWCCC is 18% (bottom of the list) compared to 56% in NSW health system with maximum of 70%
  - Process Measure: Breast IMRT within 4 months
  - VMAT treatment within 12 months
  - SABR treatment within 18 months
  - IMRT/VMAT utilization rate above 65% within 18 Months
- Enthusiasm of radiation oncology staff to implement advanced radiotherapy technology
- Availability of technology and human resources.
- Support from peers

### Secondary Drivers

- Patient compel to go to Sydney or get conventional treatment locally
- Benefit of technology for patient outcome and benefit to the staff through knowledge update
- Team building effort and convincing the team
- Treat breast IMRT/VMAT and SABR cases locally. Generate revenue
- Experiences in advanced technology and collaboration
- Benefit of technology for treatment outcome and comfort
- Benefit to the staff for their career development through knowledge update
- Availability of resources, staff dedication and confidence
- Awareness of management about the benefit of new technology. Reward for proactive approach
- Education, training and site visit opportunities and team enthusiasm
- Commission the technology of Breast IMRT, VMAT, SABR, 4D CT and associated QA methods
- Move from conventional to advanced technology. Challenge of change
- Duty of care, quality improvement and job satisfaction

### Change Ideas

- Commission the available technology of modern treatment
- Can-do approach and work with gain chart
- Seek for planning meeting to improve workforce and culture
- Optimize available resources
- Patient benefit of advanced treatment technology
- Training, site visit and collaboration
- Advocate for the evidence based quality treatment
- Training for the staff to use new technology
- Assign the task, schedule meeting according to gain chart
- Dedicate the resource. Opportunity to attend conference / courses
- Arrange flexible time to the staff for efficiency, e.g. Time in lieu and OT
- External audit. Improve working culture for quality and safety
- Seek support from management
- Move with new technology and understand duty of care and responsibility
- Radiation oncology management group meeting to convince the team and launch the project.
- Chart round discussion on patient benefit. Collaboration with experienced centre
- Present the project idea to the stake holders

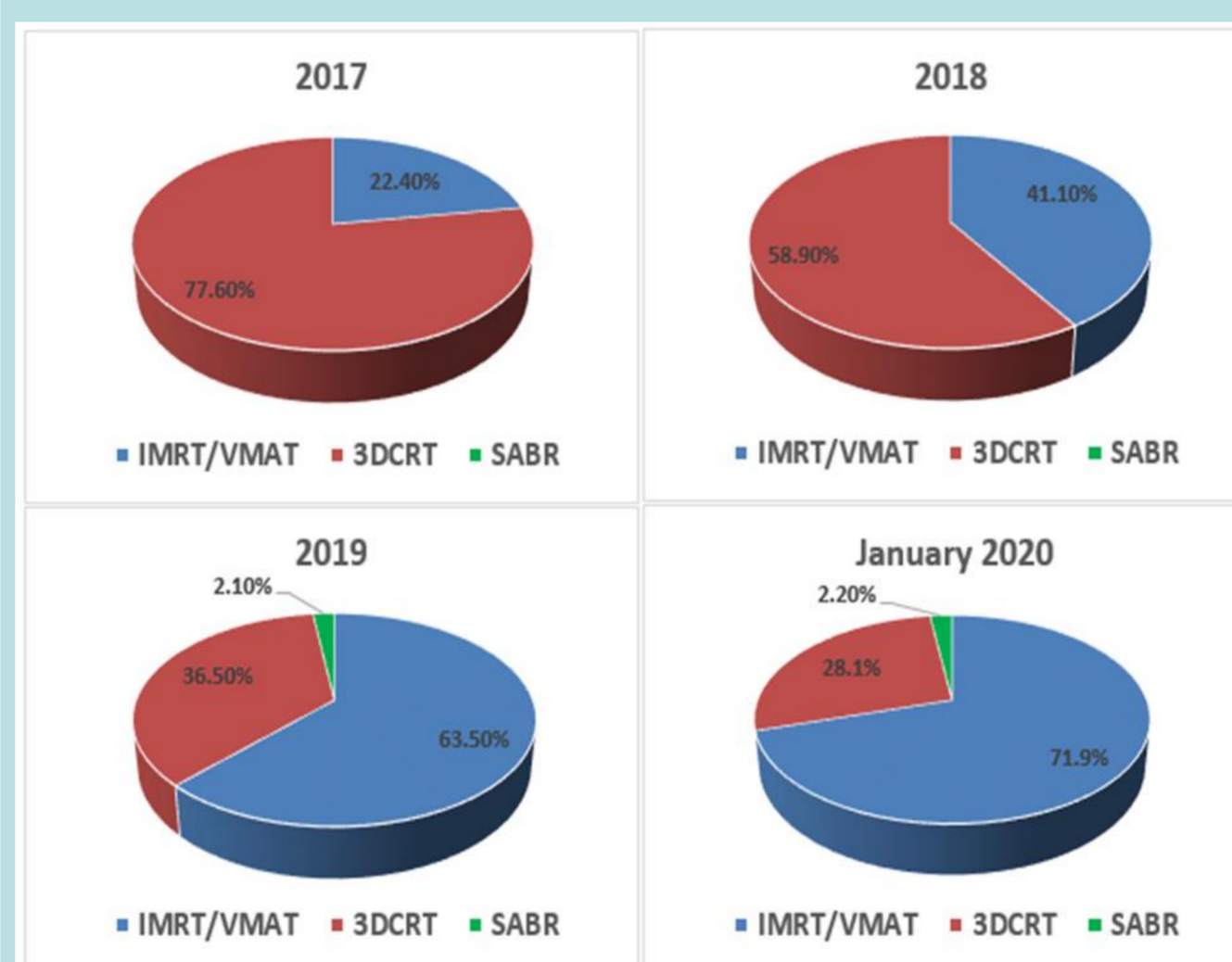
### Priority Change Ideas

- |                  |                           |                   |
|------------------|---------------------------|-------------------|
| Impact: High Low | Implementation: Easy Hard | Plan Act Do Study |
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## Achievements

- Technology utilization rate (IMRT/VMAT) after Quality Improvement projects - from below 22% in 2017 to over 70% in 2020
- IMRT Breast and SABR treatment first time in the region
- Innovations in radiotherapy technology have yielded better care and financially sustainable treatment for our patients
- The CWCCC treatment provided is now consistent with metropolitan services and national and international practice standards and rural patients can access state of the art radiotherapy services close to home
- Achieving institutional strategic aim of Right Care in the Right Place at the Right time with a financially sustainable advanced radiotherapy service in the region
- Achieving Institutional and professional goal through team work

## Results



Annual IMRT/VMAT utilization rate. Percentage of SABR treatment is among the IMRT/VMAT treatments

## Effect of change

- Radiation Oncologist now can prescribe and treat their patients using advanced radiotherapy technology IMRT/VMAT including SABR
- Fewer side effects and improved control of disease as the advanced techniques directed the dose to the tumour and reduced the radiation dose to organ at risk
- Treatment completed sooner than conventional radiotherapy, as the required dose required fewer trips to the hospital. Moderate hypo fractionation using IMRT/VMAT and hypo fractionation using SABR
- For example, SABR treatment reduces treatment sessions from approximately 30 to less than 5; and lung cancer treatment that required twenty visits to the hospital can now be completed in four or fewer visits
- Rural and remote patients are not required to travel to a metropolitan centre to have advanced Radiotherapy treatment including SABR
- Patient comfort and equity of access of best radiotherapy service in the region

## Cost saving

Increased revenue from new services  
Project outcome enable financially sustainable advanced radiotherapy service

## What this project has added?

- State of the art treatment can be implemented in rural settings with collaborative teams
- Additional staff and/or extensive training are not always required to implement new treatments
- End to end testing and external audit to ensure safety and quality is a critical part of practitioner confidence in new treatments

- CWCCC collaboration with other treatment centres provided staff with confidence in treatment planning, treatment set up and patient specific quality assurance required for advanced techniques
- Staff required an opportunity to plan for implementation with a structured project plan and a dynamic leadership for quality improvement
- A significant aspect was the quality assurance, testing of the treatment types and internal and external audit to ensure safety and quality

## Lesson learnt

Strong commitment from a trained team and a collaborative approach is important for the implementation of advanced technology in regional centres