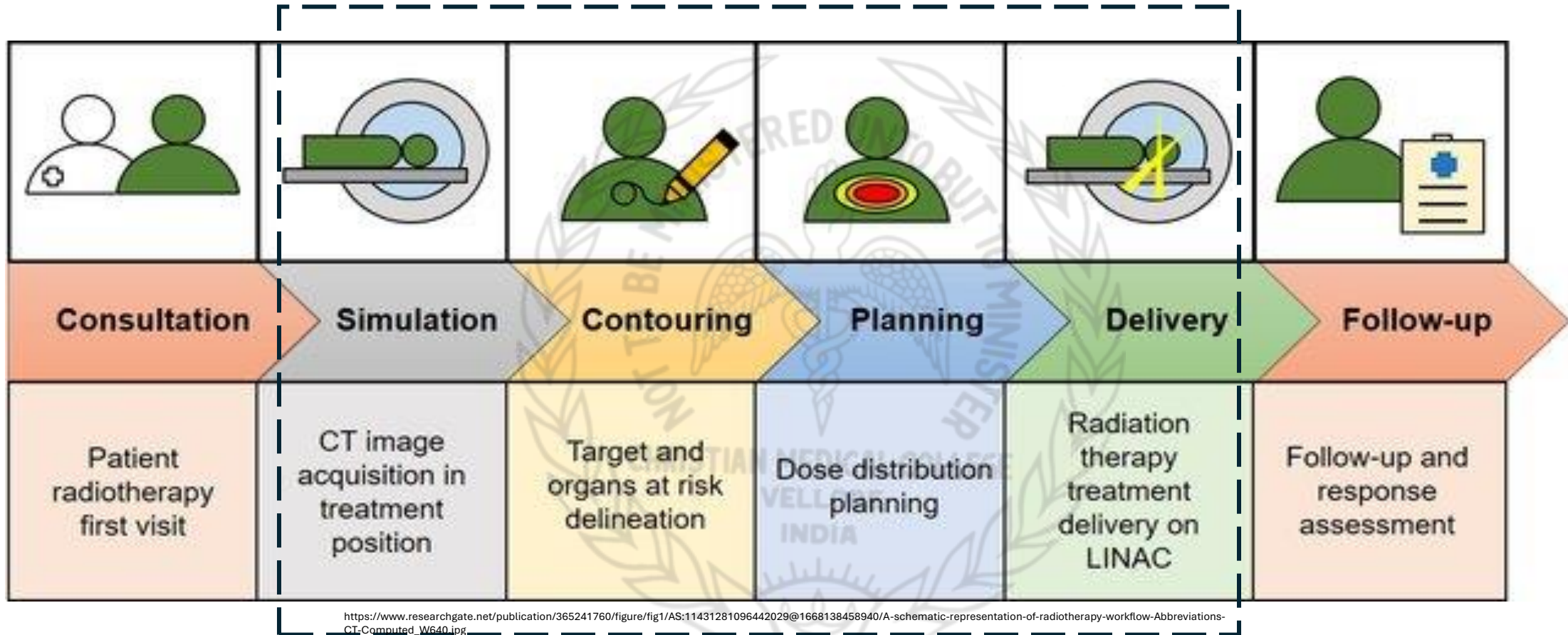# Paperless Transition
A Model of Implementation @ Radiation Oncology Department
Christian Medical College Vellore

https://www.researchgate.net/publication/365241760/figure/fig1/AS:11431281096442029@1668138458940/A-schematic-representation-of-radiotherapy-workflow-Abbreviations-CT-Computed_W640.jpg

Presenter: Dr Balu Krishna S,
Professor and Head,
Radiation Oncology Unit II
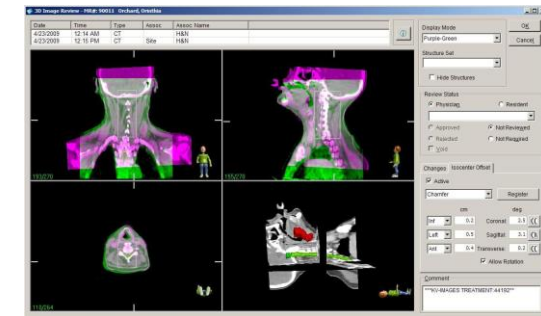CMC Vellore

Hybrid workflow

- **Radiotherapy Patient ID**
  - Clinical history
  - Disease management plan
  - Multi-disciplinary team decision and plan
  - Checklists (Simulation, Treatment planning, Treatment delivery)
  - On treatment visits (No of treatment days, breaks, replanning, Side-effects etc.)
  - Follow-up visits (Side-effects, Treatment outcome, survival etc.)

- **CMC Hospital ID –**
  - Lab reports
  - Imaging + reports
  - Treatment Planning
  - Treatment Delivery
  - Drug order
  - Patient Scheduling
  - Billing
  - Reports

In 2019, Patient Services in a second Physical Location (Ranipet Campus) became the catalyst for our transformation

Project Goals

Create a seamless patient management workflow for both staff and patients.

Streamline Workflow — Enhance patient care and reduce errors

Eliminate Data Redundancy — Remove data duplication with a single system

Create Minable Data — Ensure all patient data is digital and accessible

Project Implementation

Patient facing workflow

- Patient registration
- Clinical history, Diagnosis, Management plan Follow-up notes
- Imaging and Treatment scheduling

Staff workflow

- Treatment Simulation checklists Treatment setup notes
- Physics workflow
- Radiation treatment plan notes, Therapist workflows

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Phased Implementation
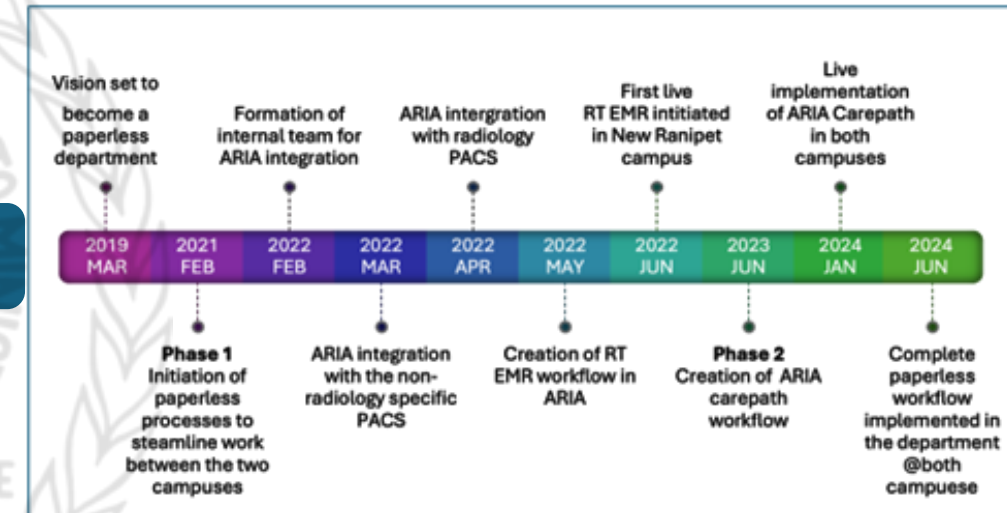
Phase 1- New Campus (Ranipet)

- Prospective Unique CMC ID
- Replicate paper-based workflow to ARIA Oncology Information System workflow
- Test in lower patient footfall Scenario
- Training of staff
- Refine the workflow for gaps

Phase 2 - Legacy Campus (Vellore)

- Prospectively move to Unique CMC ID
- Convert all touchpoints to electronic capture via ARIA Oncology Information System workflow
- Test in High Volume Patient Scenario
- Refine the workflow for gaps
- Continue training and feedback

Phase 3 – Address Interoperability of certain machines

- Integrate treatment machines that are not linked to Eclipse Planning System into the ARIA workflow

Timeline above the bar:
Vision set to become a paperless department — 2019 MAR
Formation of internal team for ARIA integration — 2022 FEB
ARIA intergration with radiology PACS — 2022 APR
First live RT EMR intiated in New Ranipet campus — 2022 JUN
Live implementation of ARIA Carepath in both campuses — 2024 JAN

Timeline bar: 2019 MAR | 2021 FEB | 2022 FEB | 2022 MAR | 2022 APR | 2022 MAY | 2022 JUN | 2023 JUN | 2024 JAN | 2024 JUN

Timeline below the bar:
Phase 1 Initiation of paperless processes to steamline work between the two campuses
ARIA integration with the non-radiology specific PACS
Creation of RT EMR workflow in ARIA
Phase 2 Creation of ARIA carepath workflow
Complete paperless workflow implemented in the department @both campuese

Training and Adoption Strategy

Training Program Overview	A comprehensive training program of stake holders addressing their specific roles and responsibilities.
Types of Training Sessions	- Lectures for foundational knowledge, - Hands-on workshops tailored to therapists, physicists, and oncologists, - Integrated sessions for collaborative learning.
Continuous Improvement Feedback Loop	- Feedback collected from participants to refine the training process - Refresher courses - Recorded sessions available for ongoing learning.

Benefits

Successful integration of ARIA EMR with the CMC Hospital Information System, allowing **single unique patient identifier.**

Increased **accessibility** to patient records, facilitating remote access and improving care **coordination** between the teams
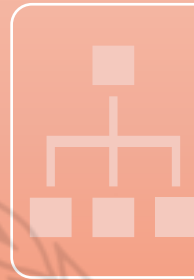
Captured over **1500 medical records** and increasing .

Scalable and replicable processes

Challenges

Limited implementation guides for some processes created confusion and delays in training and integration.

Interoperability issues between different systems presented initial hurdles during implementation.

Resistance to change impacted the speed of adoption.

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