

Getting Started: Our Journey to Tattoo/Mark-free Breast Treatments

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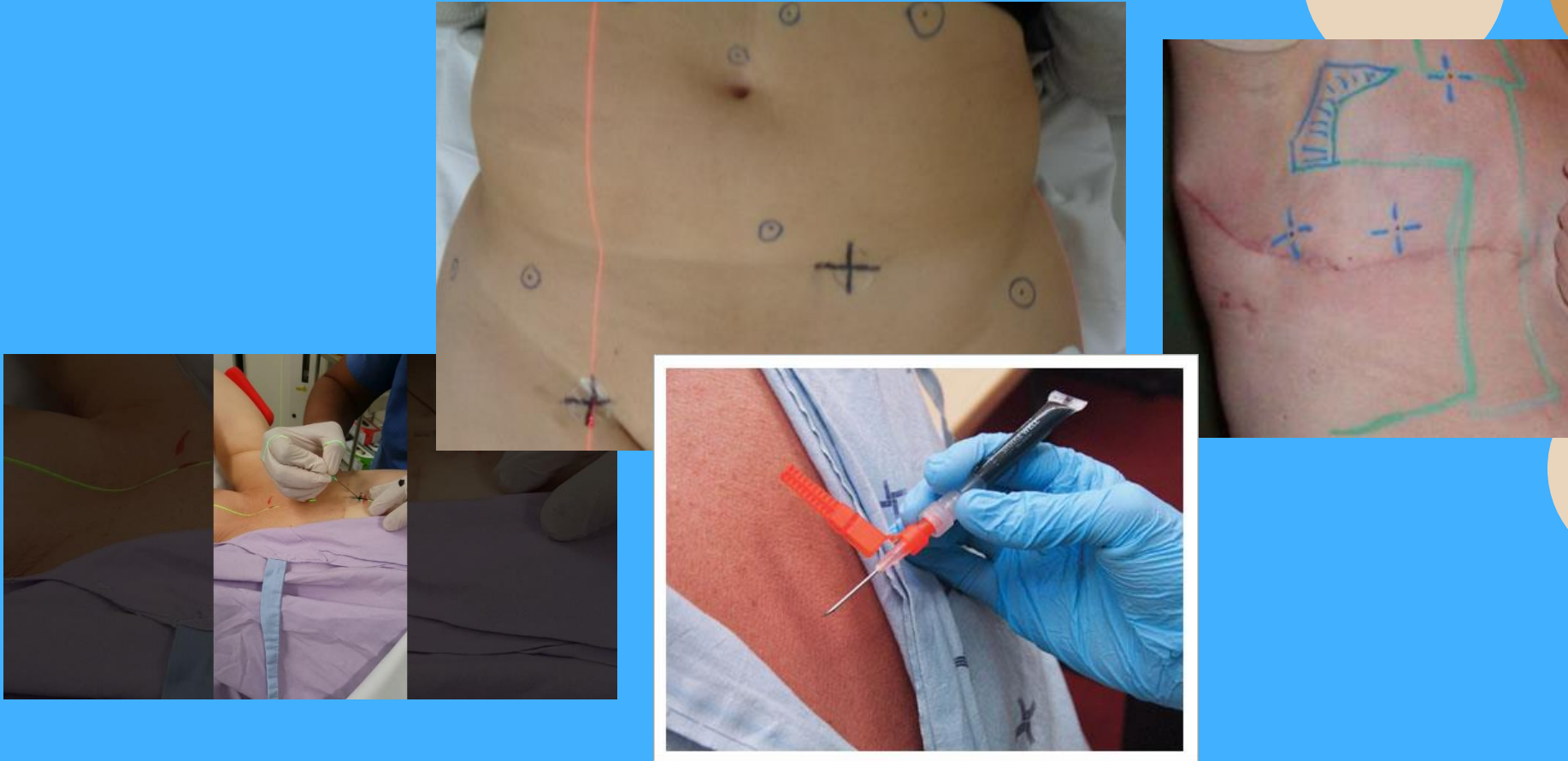
UC Davis Radiation oncology

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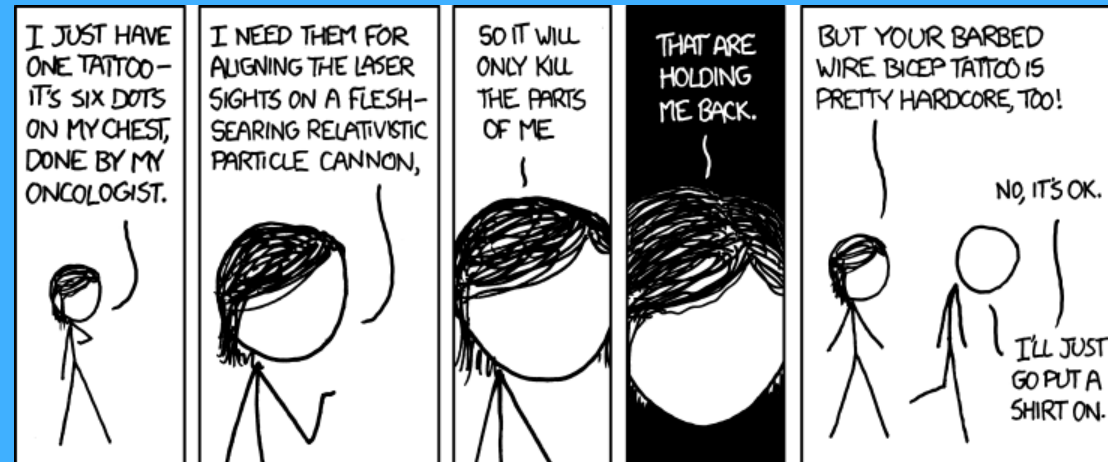
Physicist, Clinical Professor Radiation Oncology

Tattoos



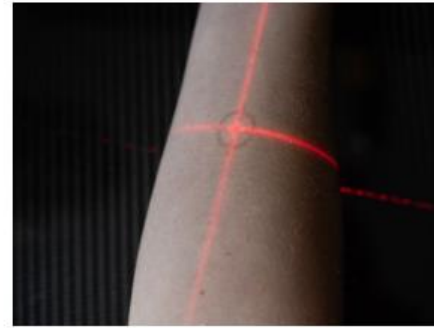
Patient experience

- Radiation therapy can be stressful
- The unknown
- The lasting side effects
- Part of a group or society



How Do We Begin Our Journey

What tools Do We Have?



Synthesis of the evidence on best practices for isocenter verification in radiation

	1	2	3	4	5	6	7
Tattoos	✓	✓	✓	✓	✓	✓	✓
SGRT-AlignRT	✓	✓	x	x	✓	✓	✓
KV/KV	✓	✓	x	x	x	x	✓
CBCT/CTOR	✓	✓	x	✓	✓	✓	✓
MV Ports	x	x	✓	x	x	x	x
SGRT- Other	x	x	✓	x	x	x	x

SYMBOL KEY

X= not applicable or ✓ = applicable or present

LEGEND: 1 – Leech & Naidoo, 2022; 2 – Wei, Wenbo, et al. 2019; 3- Shimizu-Niwa et al. 2022; 4- Javor, J., et al. 2022; 5- Zhao, Hui, et al. 2019

Synthesis of the evidence on outcomes of SGRT utilization when compared to tattoo

	1	2	3	4	5	6	7
Setup accuracy	↑	↑	↑	↑	↑	↑	
Efficiency	↑	↑	X	↑	X	↑	
Cost Savings	X	X	X	↑	X	X	
Patient Satisfaction	↑	↑	↑	↑	X	X	
Need for repeat imaging with SGRT	↓	↓	↓	X	X	↓	
Outcome #n							

SYMBOL KEY

↑ ↑ = Increased, ↓ ↓ = Decreased, — = No Change, X = Not Examined, NR = Not Reported, ✓ = applicable or present

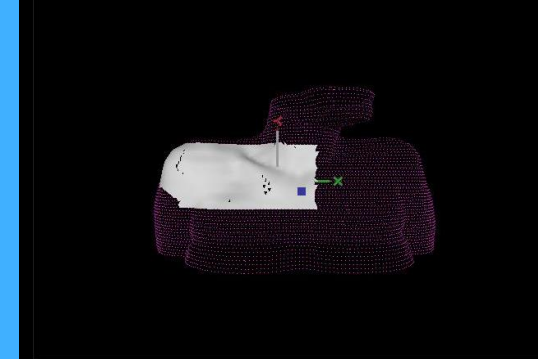
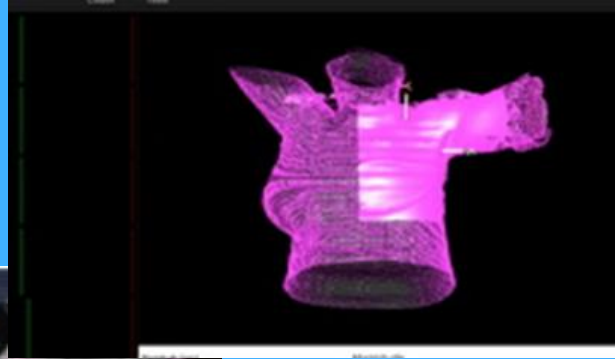
1 – Leech & Naidoo, 2022; 2 – Wei, Wenbo, et al. 2019; 3- Shimizu-Niwa et al. 2022; 4- Javor, J., et al. 2022; 5- Zhao, Hui, et al. 2019

Evidence-based Recommendation(s)

Based on the evidence...

- Implement SGRT with internal imaging for all patients.
 - Type of internal imaging tbd
-

Using Align RT to replace tattoos



Workflow and Reproducibility

Simulation

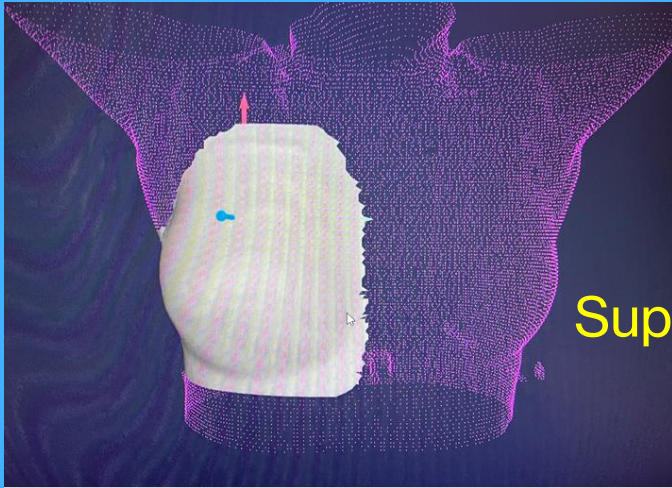
- Breast Board
- Indexing
- Patient straight and leveled
- Scars, prominent anatomical landmarks
- Do not build up immobilization devices.

Treatment

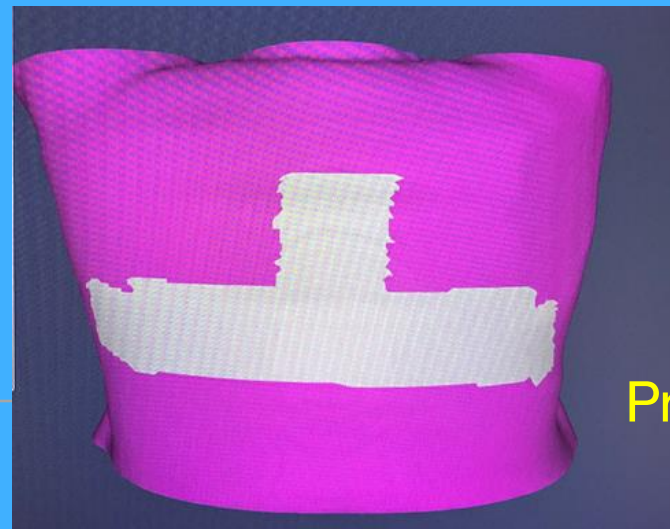
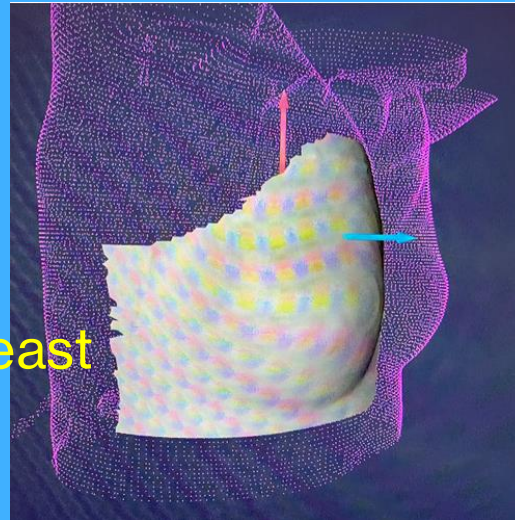
- Start with indexing: Long
- CMA
- Utilize Postural Alignment
- Extremity positioning: Arms position affects many things
- Effective Region of Interest



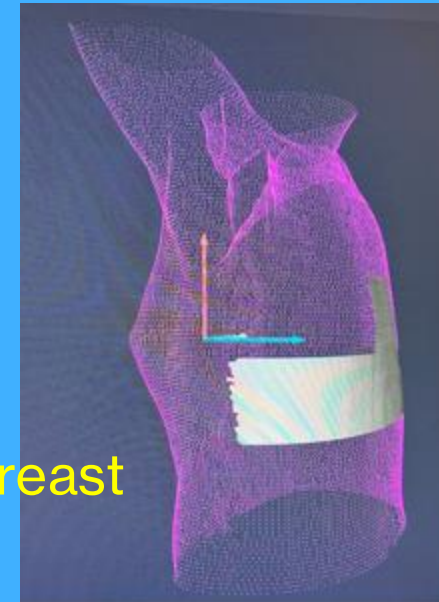
Regions Of Interest (ROI)



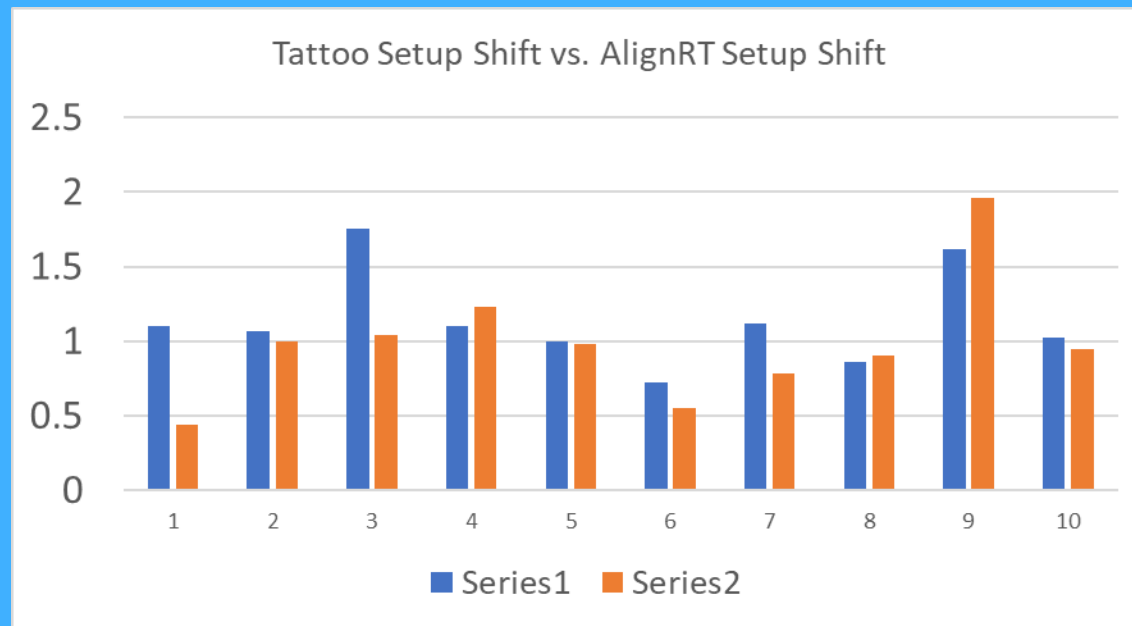
Supine Breast



Prone Breast



So We Tried It and.....



Not Selected

Zoom: 78%

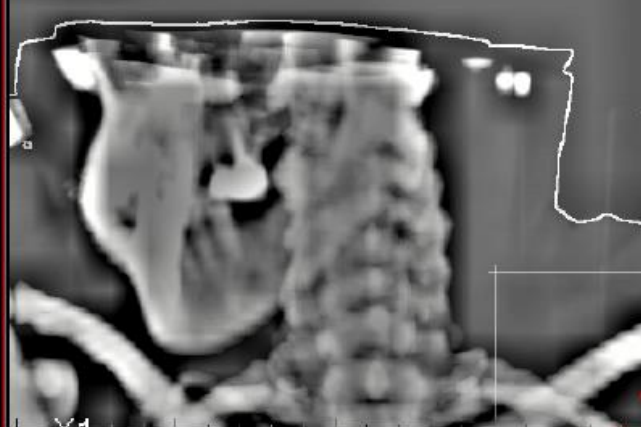
Beam: LLAT
ISO L BREAST: 9.62 31.90 7.98 cm
SAD: 100.00 cm
SSD: 92.76 cm
Segment: 1/1

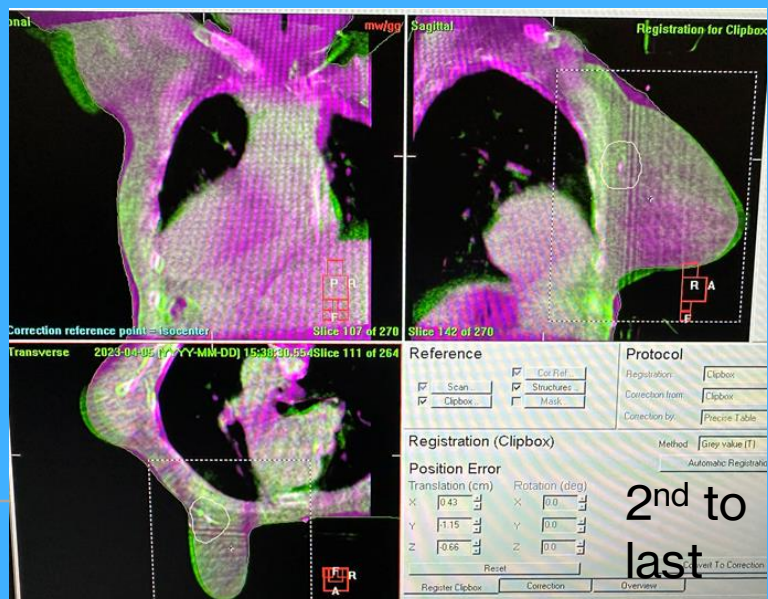
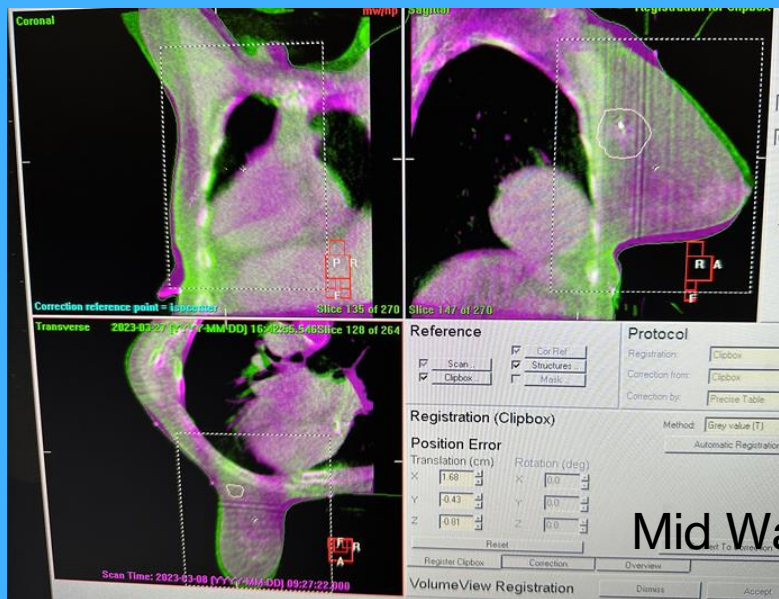
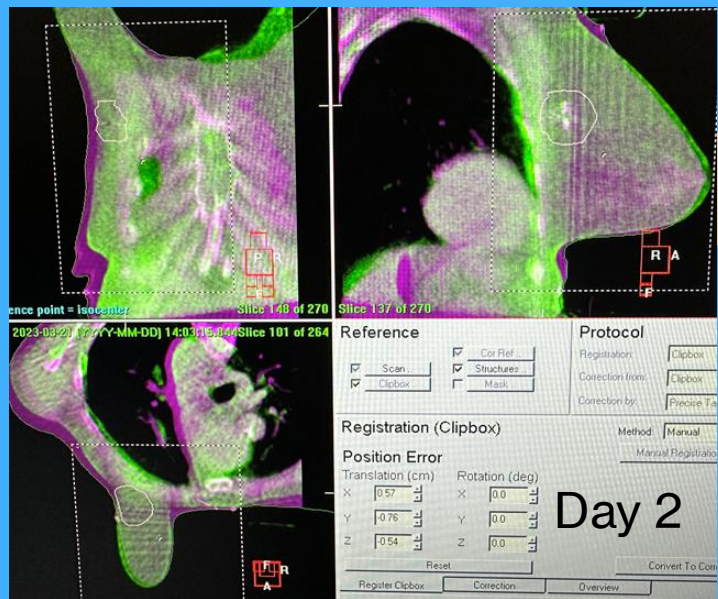
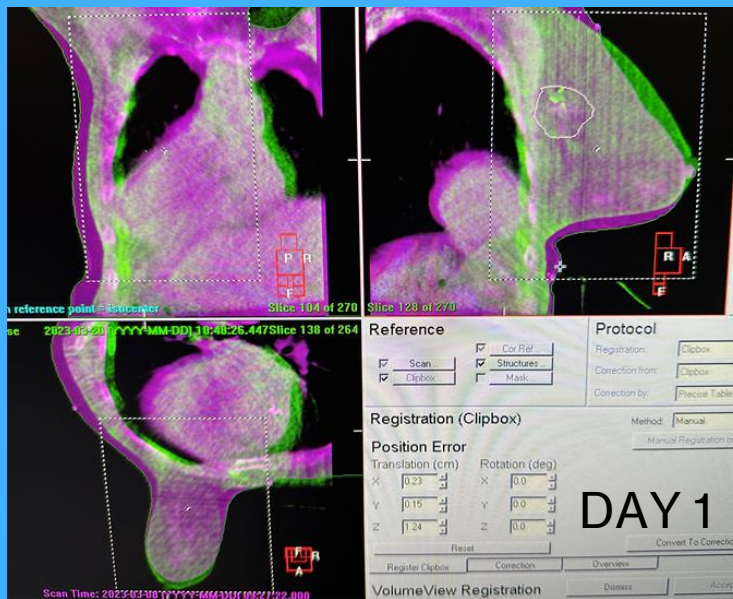


Selected

Zoom: 78%

Beam: ANT
ISO L BREAST: 9.62 31.90 7.98 cm
SAD: 100.00 cm
SSD: 97.25 cm
Segment: 1/1





A very Special Thank You

**Dr. Peter Park and Megan
Keohane for data gathering.**

&

**The Radiation Therapist at UC
Davis who are paving the way
for our patients through their
learning and development.**
