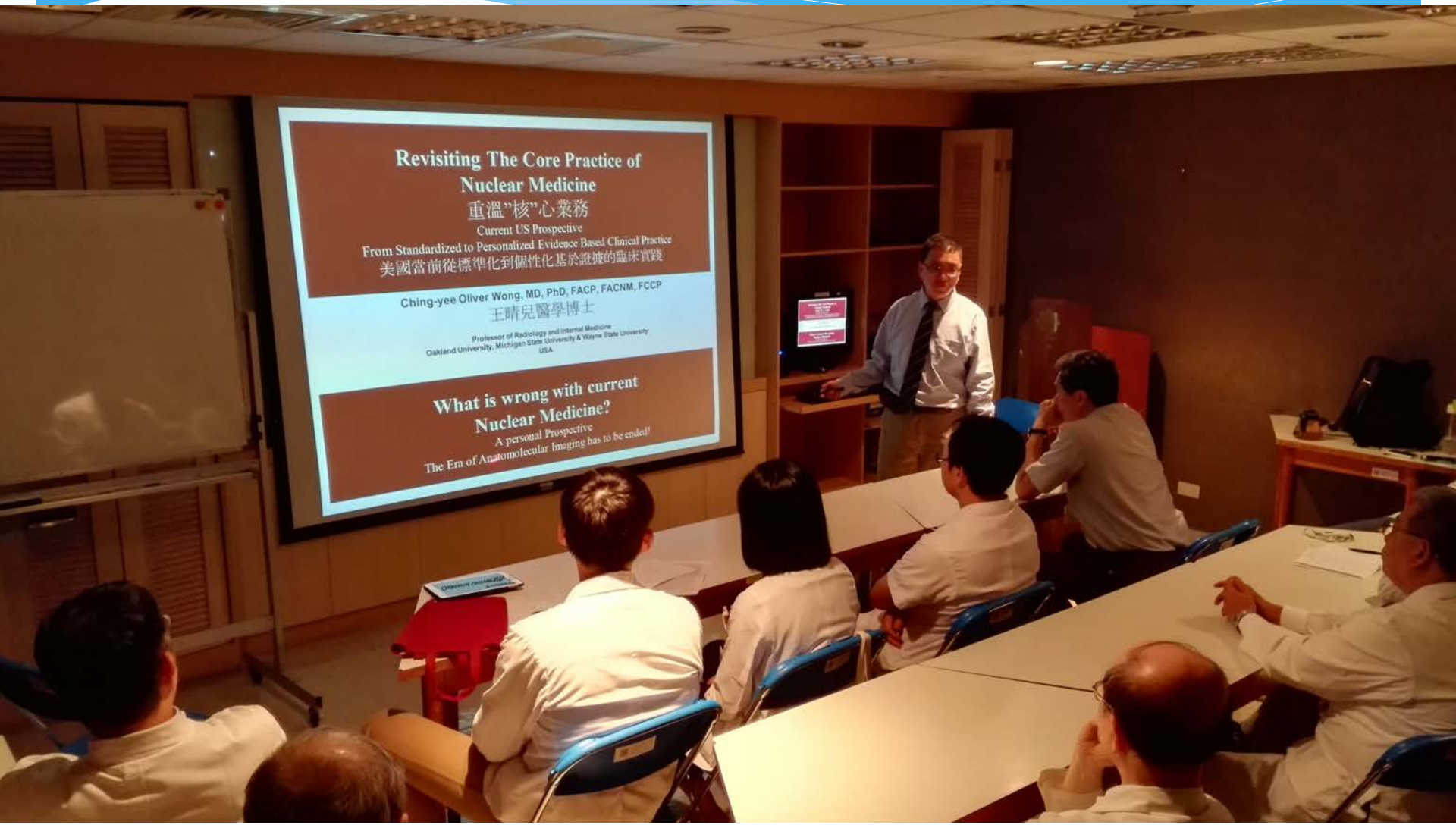
王晴兒醫學博士
2016-10-26

Revising the core practice of nuclear medicine


Revisiting The Core Practice of
Nuclear Medicine
重溫"核"心業務
Current US Prospective
From Standardized to Personalized Evidence Based Clinical Practice
美國當前從標準化到個性化基於證據的臨床實踐
Ching-yee Oliver Wong, MD, PhD, FACP, FACNM, FCCP
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Oakland University, Michigan State University & Wayne State University
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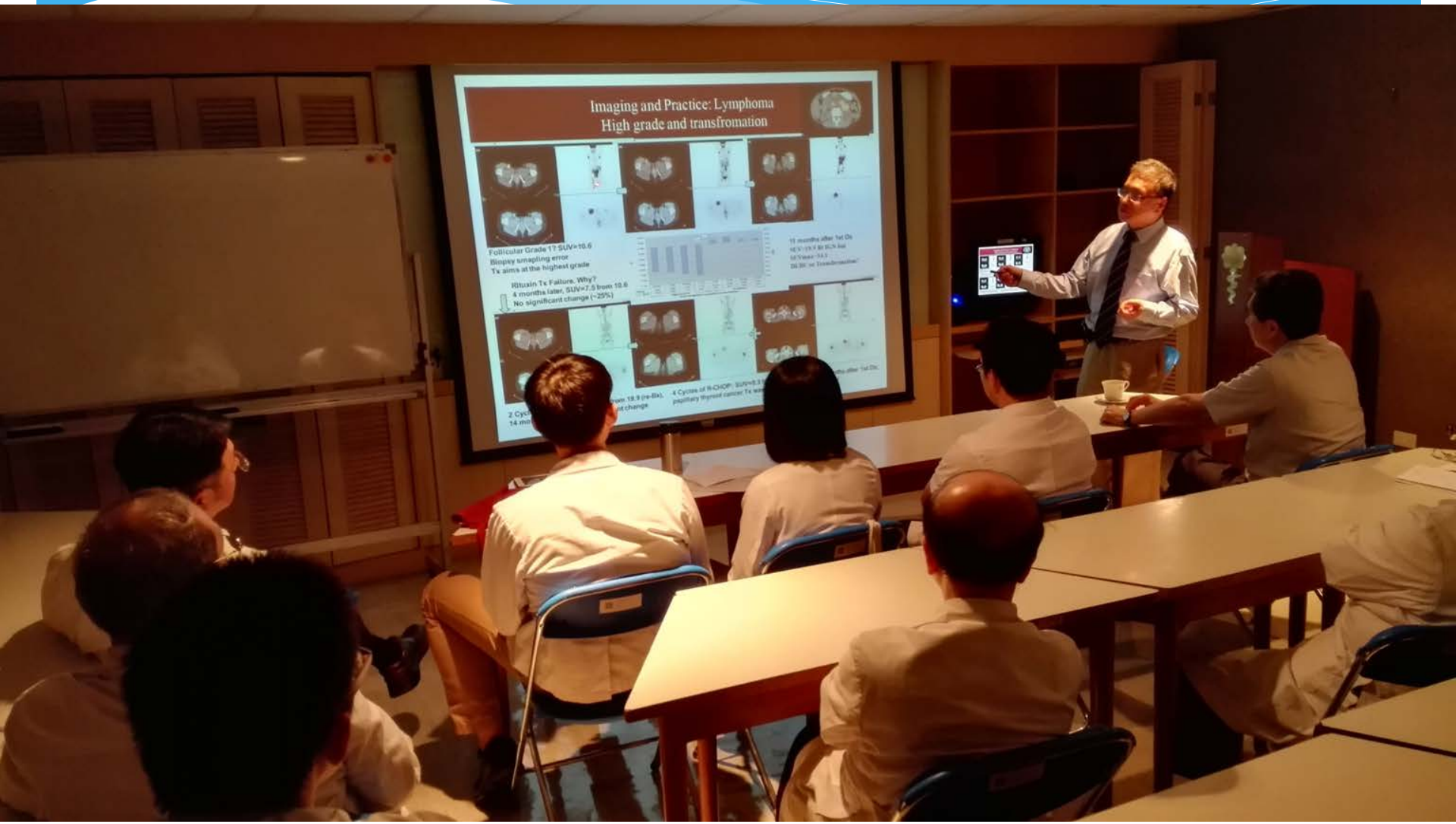
What is wrong with current
Nuclear Medicine?
A personal Prospective
The Era of Anatomolecular Imaging has to be ended!


Imaging and Practice: Lymphoma
High grade and transfromation
Follicular Grade 1? SUV=10.6
Biopsy smapling error
Tx slims at the highest grade
Rituxin Tx Failure. Why?
4 months later, SUV=7.5 from 10.6
No significant change (~25%)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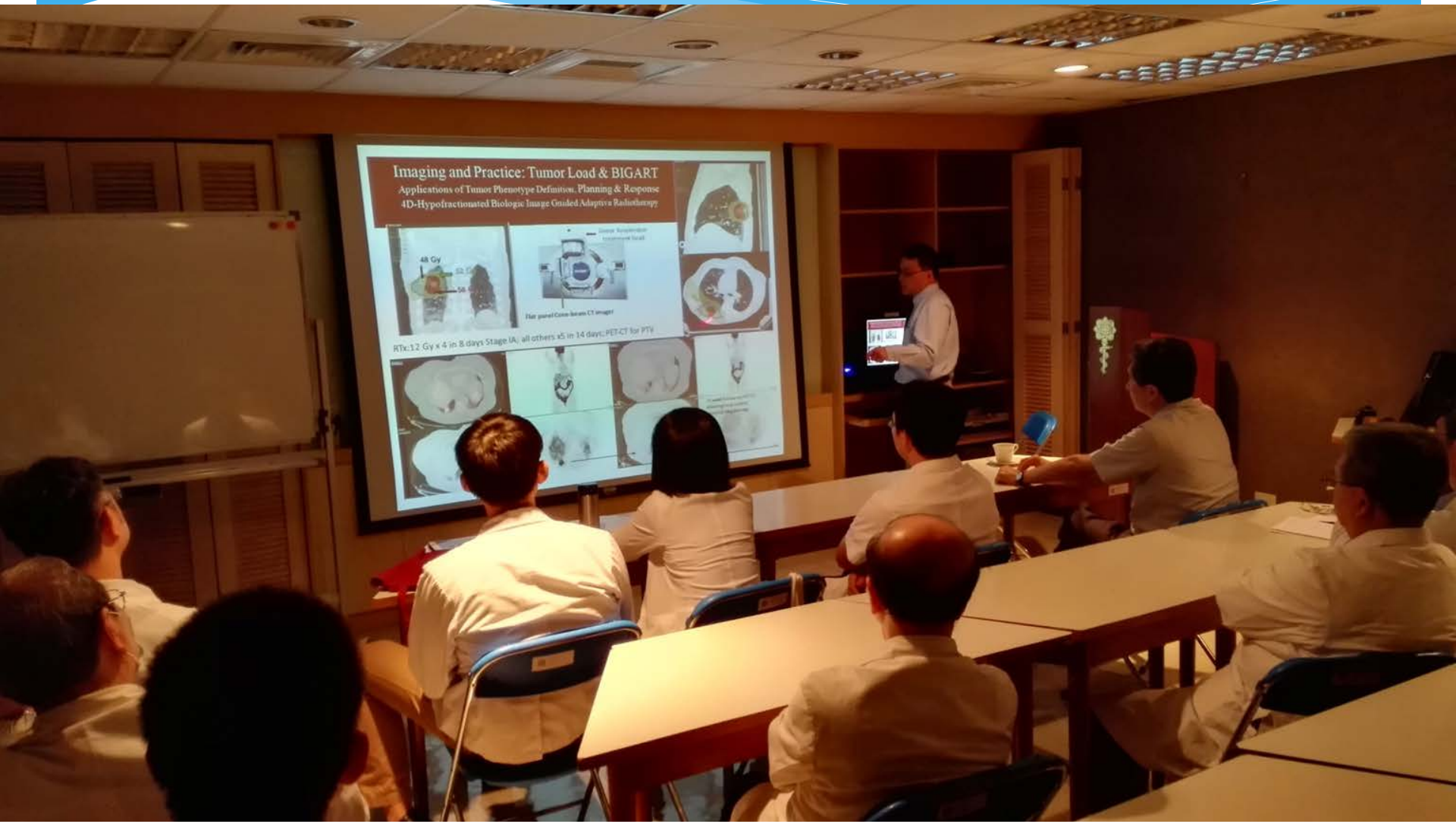
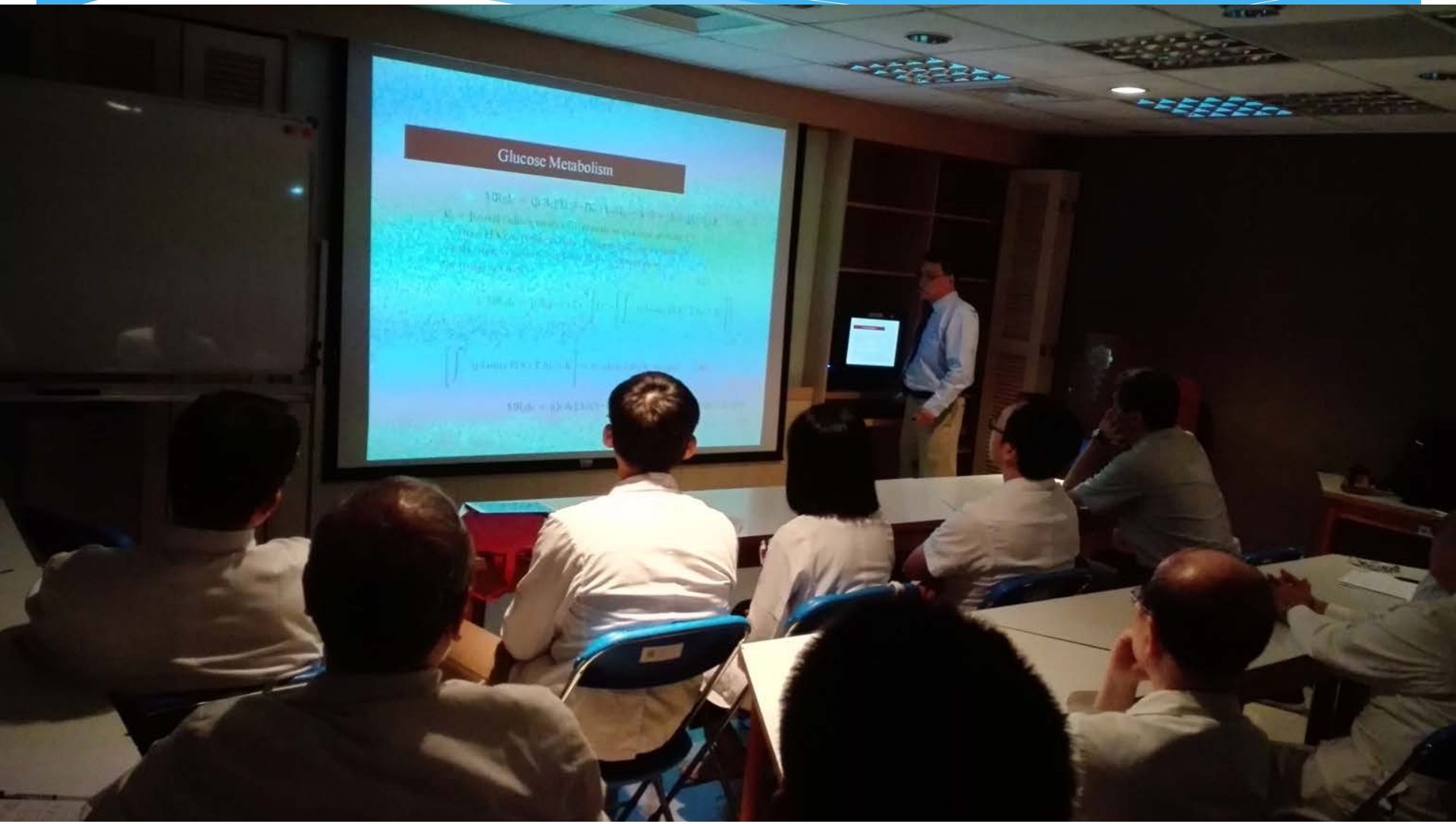

Imaging and Practice: Tumor Load & BIGART
Applications of Tumor Phenotype Definition, Planning & Response
4D-Hypofractionated Biologic Image Guided Adaptive Radiotherapy
48 Gy
RTx:12 Gy x 4 in 8 days Stage IA; all others x5 in 14 days; PET-CT for PTV


Stem Cell after Radiation Therapy
BM-derived endothelial progenitor cells directly contribute to tumor neo-angiogenesis. The migration is dependent on intratumor signaling cascades involving stromal cell-derived factor-1α (SDF-1α), hypoxia-inducible factor-1α, and transforming growth factor-β1.
We previously reported that BM-derived hematopoietic stem and progenitor cells (HSPCs) play a direct role in lung cancer tumor growth and neovascularization and found that CD133+ HSPCs possess hemangioblastic potential, with an ability to clonally generate both myelomonocytic and endothelial cells. Further, we showed that HSPCs promote tumor blood vessel formation and growth in an SDF-1α-dependent manner.
Treatment of solid tumors often involves a multimodality approach, using surgical resection, chemotherapy, and RTx.
Hypothesis: A hypofractionated RT schedule would modulate HSPC recruitment and impact tumor regrowth.
Aim #1: RTx affects the level of BM-derived HSPC migration in a heterotopic tumor model and that the number of recruited HSPCs correlates to tumor regrowth rates.
Aim #2: HSPCs maintain functionality within tumors, suggesting a supportive niche within tumors, which allows for the survival of HSPCs that participate in tumor regrowth.


Glucose Metabolism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