Setting the Wheels in Motion: Principles of Successful Multidisciplinary Collaboration

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Establishing Multidisciplinary Collaboration as a Medical Physicist
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Disclosures

• None
• Chair: AAPM Work Group on Prevention of Errors

Outline

• Example collaborations
  – Clinic
  – Laboratory
• Principles of successful collaboration
• Pitfalls
Successful Collaborative Projects

• Start with what you already know/ do
  – Clinical core
  – Colleagues you know
• Expand bit by bit

Patient Safety Improvement

• Humble beginnings
  – Process improvement committee: Fall 2005
• No AAPM/ASTRO guidance
• Need for outside expertise
Patient Safety Improvement

Failure Mode and Effects Analysis

Patient Safety Improvement
Patient Safety Improvement

Successful Collaborative Projects

**DO**
- Start small
- Keep clinical core
- Pick the right project

**DON’T**
- “One-off” projects
- Force a partnership
- Drift
Successful Collaborative Projects

- What makes a “good” project?
  - Peer review
  - One-page NIH-style summary

Small Animal Radiation Research Platform

- Timeline
  - R01 2005. PI: John Wong.
  - Functioning unit: November 2006
  - Experiments: 2007 - present
Small Animal Radiation Research Platform

Localized Irradiation of Mouse Brain

On-board CT

Tissue Histology

Localized Ablation of Neural Stem Cells

Tetocytes of the hypothalamic median eminence form a diet-responsive neurogenic niche

Localized CT-guided irradiation into neurogenic areas in specific regions of the adult mouse brain.

2012
Proton Micro-irradiator

\[ \text{p}^+ \text{ beam in air} \]

\[ 8 \text{ mm} \]

\[ 2 \text{ mm} \]

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**Successful Collaborative Projects**

- Start with what you already know/ do
- Expand bit by bit

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**Successful Collaborative Projects**

- Key elements
  - Willingness to expand / learn
  - Listen to feedback
  - Right project
  - Overarching plan
  - Right partners
Red Flags

- No partners
- Interact < 1x / month
- No (plans for) a paper after one year
- No future direction

Conclusions

- Multi-disciplinary collaboration
  - You can do it
  - Keep core focus
- Impact

Acknowledgments