
- Paul Harvey

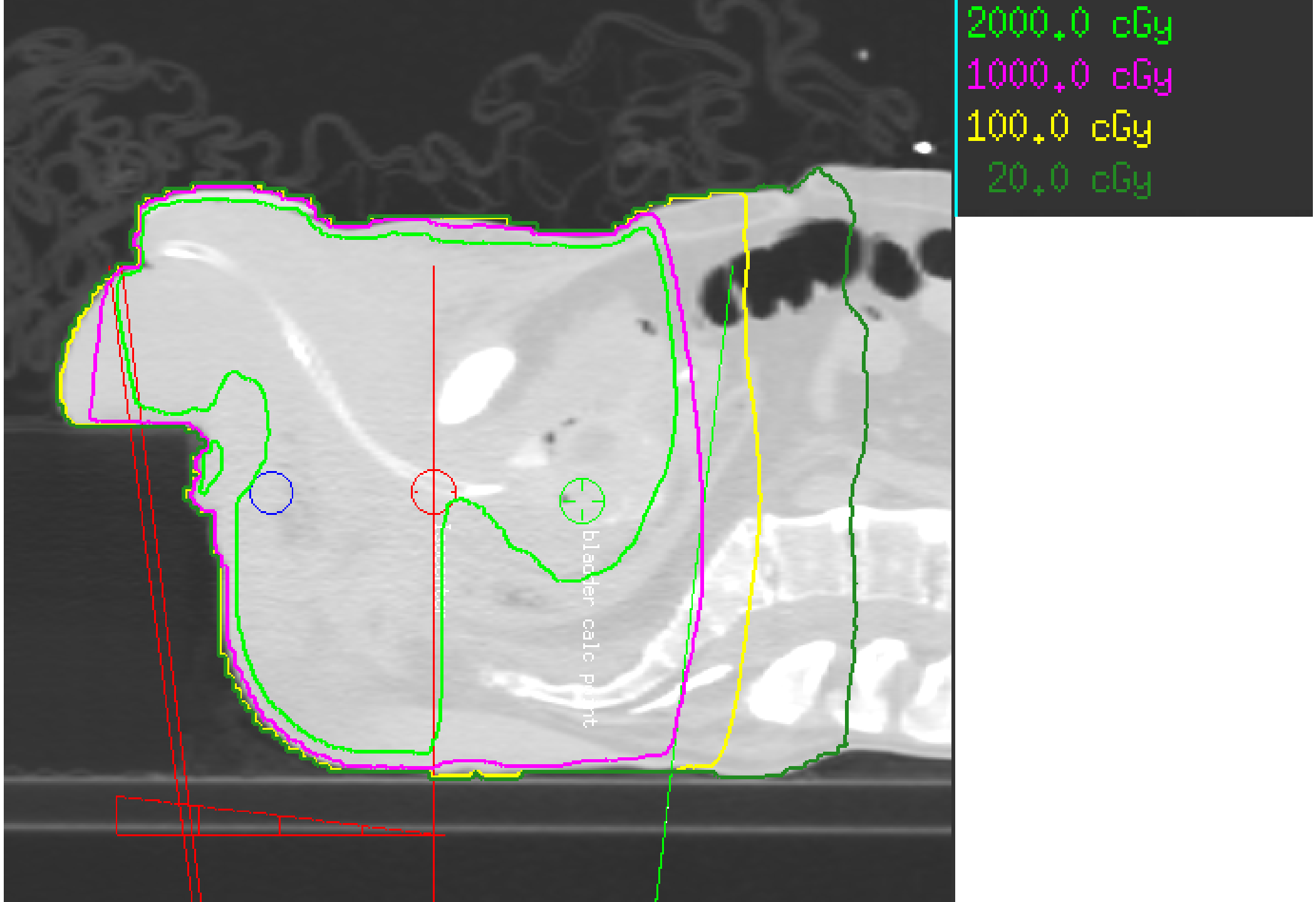
# Clinical Case Type 3 – Multi Discipline Procedures

(Unkown Unkowns)

- Patient Information:
  - 64 y/o male
  - BMI 24.3 kg/$m^2$
  - Post surgical internal pelvic bleeding
- Patient referred to IR for diagnosis and treatment
- Following procedures were performed over a 3-week period

# Peak Skin Dose (PSD)

- Estimated contribution to a given field per procedure:
    1. Day 0 – 3.8 Gy
    2. Day 7 – 9.2 Gy
    3. Day 10 – 1.3 Gy
    4. Day 16 – 2.2 Gy
- Total estimated PSD = 16.6 Gy
- BUT……..


2000.0 cGy
1000.0 cGy
100.0 cGy
20.0 cGy
bladder calc PTV

# OARs?

- Skin
  - EBRT ranged from 0.2 to 10 Gy (target dose of 20 Gy)
  - FGI PSD ~ 16 Gy to same anatomic region (RBE of 1.2 – 1.3, not accounted for)
- Bladder? Sacral vertebrae? Gonads?
  - EBRT ranged from 1 to 20 Gy (RBE ~ 1)
  - FGI largely unknown, not typically considered
- Diagnostic and Therapy physicists speak about dose in different ways ($K_{a,r}$ and AKAP vs Target and OAR doses)

# Isolated Instance?

- Review of patients undergoing FGIs and external beam radiation therapy within a quaternary care medical center
    - AAPM 2018 Abstract – Zhoa, Wunderle, Godley

- Over a 3 yr period ***~ 25 patients/yr*** had fluoro procedure > 3 Gy $K_{a,r}$ within 12 months of EBRT (before or after) in similar anatomic region

# Unknowns

- How can we track radiation doses for these patients?
    - No current dose tracking system accounts for this
- How do we identify and manage these patients?
- Can we change clinical care?
    - What if high fluoro dose is first?
    - Can treatment plan avoid skin entrance from FGI?

# Where do we go from here?