

# Three-Year Experience of a Multidisciplinary Central Nervous System Clinic Model for Radiation Oncology and Neurosurgery (RADIANS) in a Community Hospital Setting

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# Introduction

- RADIANS multidisciplinary CNS clinic formed Fall of 2016
- Community Hospital Setting outside Portland, OR
  - **patient-centric** approach
  - **optimize** patient/physician time
  - **simultaneous evaluation** with radiation oncologist and neurosurgeon
- Medical Oncology (most common referral source)
- Patient Satisfaction Score = 4.77/5
- 140% Increase in Patient Volume in Last 12 Months

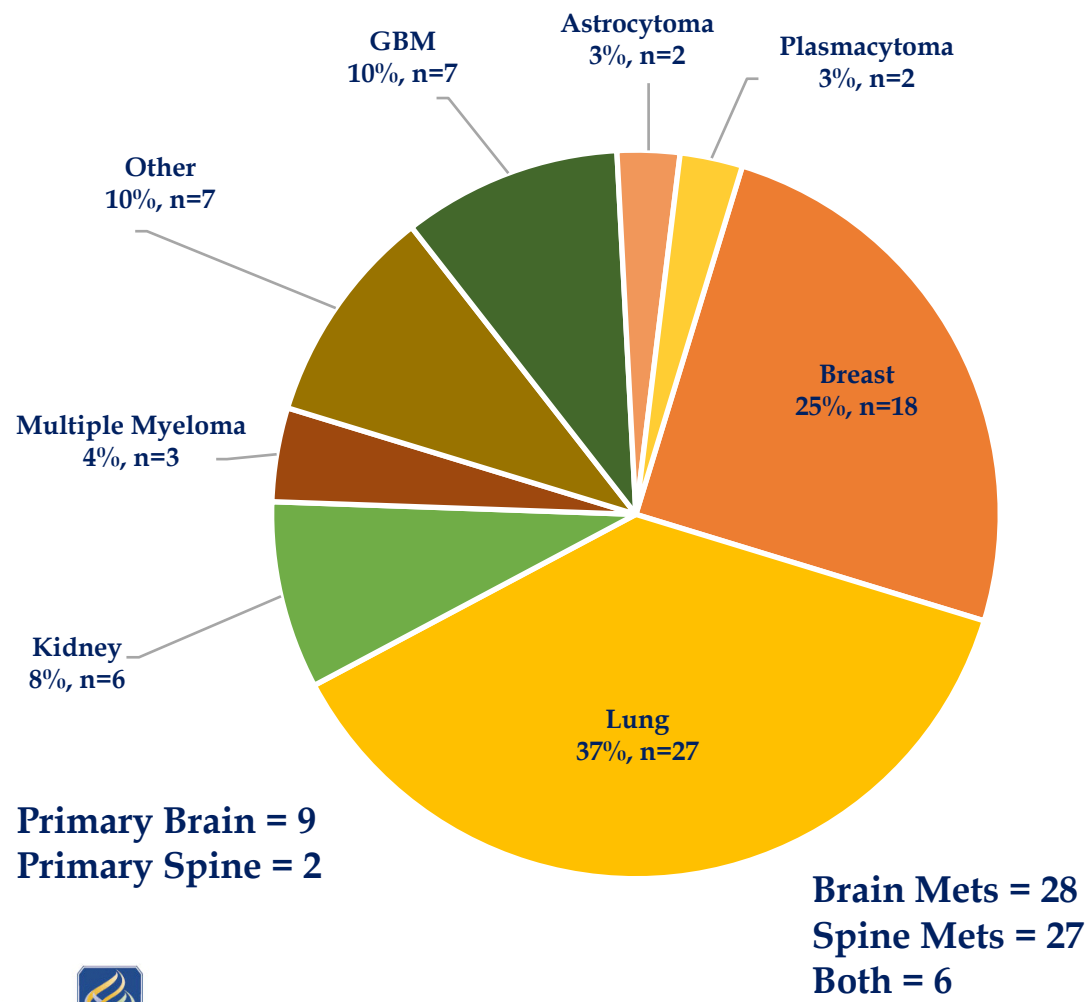
# Methods

- IRB approved prospective patient registry developed Fall 2016
- Clinical and demographic data were collected, stored in secure database where only IRB-approved research team members had access, and reviewed over 3-year period (2016-2019)
- Patients referred into RADIANS clinic were **seen simultaneously by** both physicians, the **radiation oncologist** and **neurosurgeon**, in a **single clinic visit setting**
- Prior imaging and workup reviewed before the initial visit
- Discussion and Q&A regarding diagnosis and treatment options were done
- Family members and/or caregivers were included in discussion with consent of patient.
- Patient surveys given to all patients prior to the conclusion of their visit

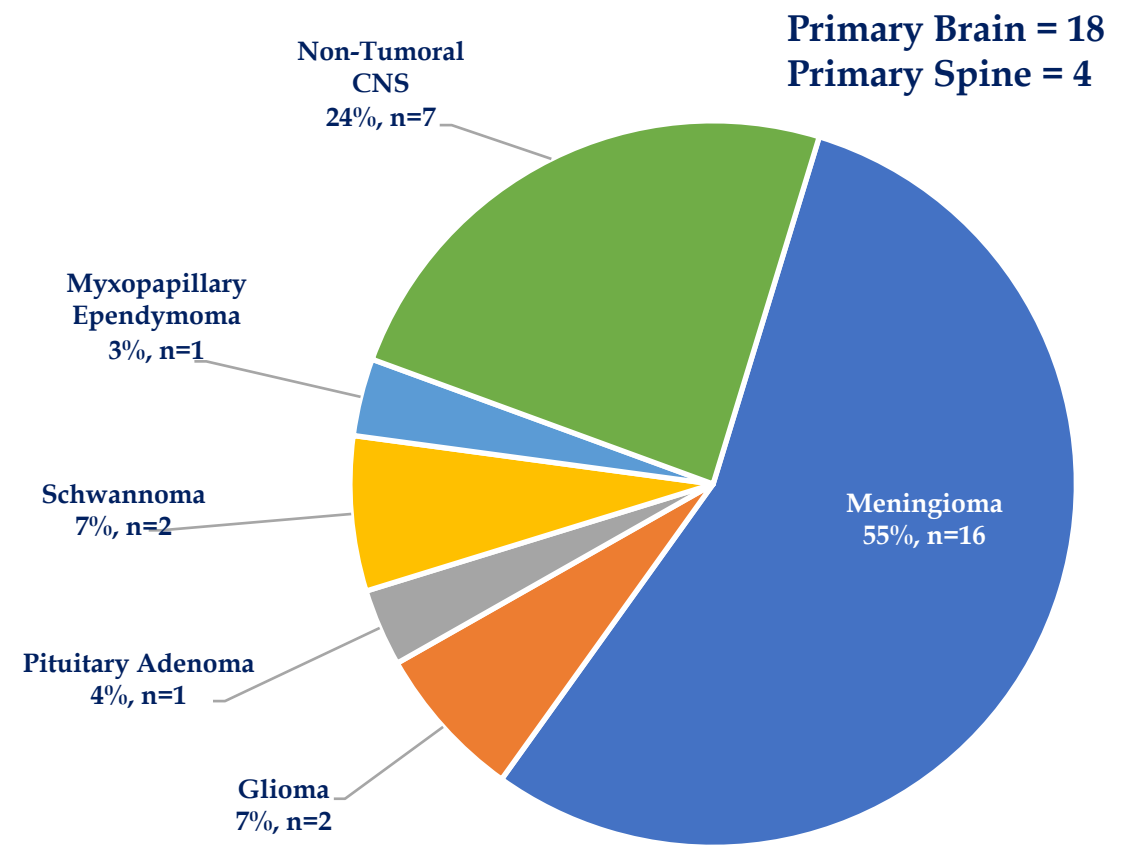
# Patient Characteristics (n=101)

- Mean Age = 61yrs; Med = 63yrs; Range = 20-94yrs
- Females (n=65, 64.4%); Males (n=36, 35.6%)
- Mean Distance Traveled = 54.9mi; Med=13.0mi; Range = 0.6-340mi
- KPS  $\geq$  80 = 81, 80.2% (KPS  $\leq$  70 = 20, 19.8%)
- Co-Morbidities (one-two), n=49 (48.5%); (three-four), n=13 (12.8%)
- Two Most Common Co-Morbidities
  - COPD (n=27, 26.7%)
  - HTN (n=26, 25.7%)
- Obesity Class I (BMI = 30-34.9) = 20, 19.8%
- Obesity Class II (BMI  $\geq$  35.0) = 15, 14.8%

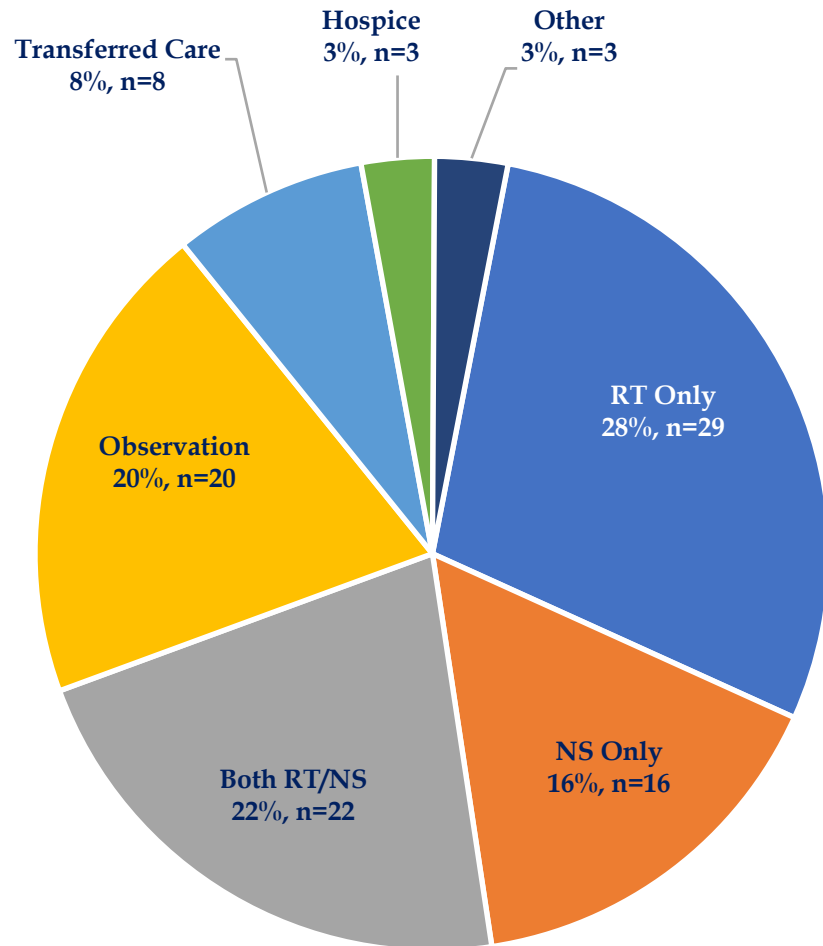
# Malignant



# Benign



# Treatment Allocation



## Radiation Therapy Received

- Stereotactic Radiosurgery/Body RT = 38/51, 75%
- Conventional Fractionated RT = 14/51, 27%
- Tumor Treating Fields\* = 2/7, 28%
- 1 patient received WBRT and SBRT to the spine

## Neurosurgery Performed

- Craniotomy with Tumor Resection = 28/38, 74%
- Separation Surgery<sup>¥</sup> = 8/38, 21%
- Laminectomy/Laminotomy = 2/38, 5%

\* 1 GBM patient received TTF; 1 GBM patient received Conventional RT + TTF  
¥ Separation Surgery = spinal stabilization/fusion with maximal safe resection and decompression

# Treatment Outcomes

## RT Only (n=29)

- 9 pts followed-up by MedOnc or deceased prior to RADIANS follow-up
- 20 pts with 3mo repeat imaging:  
Radiation Necrosis = 0%, 0/20  
Local Control = 80%, 16/20  
CNS Disease Progression = 55%, 11/20

## NS Only (n=16)

- No neurologic deficits
- Post-op complications = 6%, 1/16; [medically-related = 4/16]
- At 3mo post-op repeat imaging:  
Local Control = 100%, 16/16  
CNS Disease Progression = 6%, 1/16

## Both RT/NS (n=22)

- Tumor resection followed by post-op RT to tumor cavity and unresected lesions
- No neurologic deficits
- Post-op complications = 14%, 3/22
- At 3mo repeat imaging:  
Radiation Necrosis = 4%, 1/22  
Radiation Myelitis = 4%, 1/22  
Local Control = 91%, 20/22  
CNS Disease Progression = 18%, 4/22



# Patient Current Status

- Active Follow-up = 63
- Transfer of Care = 8
  - Decision to receive RT closer to place of residence
  - Decision to have NS performed at university hospital
- Hospice Care = 6
- Declined Treatment = 1
- Lost to Follow-up = 1
- Deceased = 22 (18/22 with Stage IV disease)

# Conclusions

- Unique **Community-Hospital Based** CNS Clinic Model
- **High Patient Approval** at Extended Follow-up
- **Regional Referral Center** for Complex CNS Disease
- Delivers State-of-the-Art, **Evidence-Based Treatment Modalities** in a Community Hospital Setting
- Good **Local Control** and Low Rates of (G3/4) **Radiation-Induced Toxicity**
- Access to **On-Going Clinical Trials**
- **Future Considerations:** Analyzing Cost-Benefit, CNS Morbidity/Mortality Rates, Early Detection Rate, Elderly Adult Patient Outcomes, and Caregiver Impact