Definition of “surveillance”

- Patient definitively treated for HNSCC
  - Not halfway through treatment
  - Not palliative
- No clinical evidence of disease

Goal of surveillance imaging

- Start treatment of recurrence earlier

Options for imaging surveillance

- ceCT
- MRI
  - Perfusion/diffusion
  - Whole body
- PET-CT and PET-MR

Timing of first surveillance scan

- 2 or 3 months after conclusion of therapy

New this year! NI-RADS

Implementation of a Novel Surveillance Template for Head and Neck Cancer: Neck Imaging Reporting and Data System (NI-RADS)
NI-RADS
• Scoring system akin to BI-RADS
• 1-4 scale
  1 = no evidence of recurrence (negative)
  2 = questionable (probably negative)
  3 = suspicious (probably positive)
  4 = known recurrence (positive)

NI-RADS
• One score for primary site
• One score for neck nodes
• (One score for distant disease)
• P1 N2 D1
• Goes at the end of every PET-CT report

NI-RADS 1
Familiar artifacts

NI-RADS 1
Cystic or calcified node with no FDG

NI-RADS 2
Probably inflammatory
NI-RADS 2
Irradiated Nodes with FDG uptake

NI-RADS 2
Partial Response on CT, complete on PET

NI-RADS 2
Bulky disease with near-complete response

NI-RADS 3
Inadequate response to therapy

NI-RADS 3
Inadequate response to therapy

NI-RADS 3
Residual enhancement, FDG neg
NI-RADS 3
PET-positive, obscured on CT

NI-RADS 4
Unequivocal recurrence

NI-RADS 4
PET-positive, CT-negative

NI-RADS – Does it work?
PET-CT @ UPitt
NI-RADS 1 = 90% NPV
NI-RADS 2 = 80% NPV
NI-RADS 3 = 65% PPV
NI-RADS 4 = 95% PPV

A scheme for
PET-CT surveillance of HNSCC

PET-MR of HNSCC
- More complete evaluation of primary tumor site
  - Skull base
  - Tongue
  - Larynx
- Perineural spread
- Intracranial disease
- Lymph Nodes
- Lung metastases