**Supplement 2. Protocols.**

**Patient Intake Form.** At time of scheduling, this form serves a dual purpose of scheduling and quality control to ensure essential patient information for the procedure (e.g., history, prior treatment, medications, preoperative medications).

Name:_____________________________________ DOB:__________________________ Age:________________

Diagnosis:__________________________________ Known lesions at consult:_______________________________

Neurosurgeon:______________________________ Radiation oncologist:___________________________________

Medical oncologist:_________________________ Referring physician:____________________________________

Does the patient have a pacemaker or other implanted device? YES/NO If yes, provide the following:
Type of device_______________________________ Manufacturer & serial number________________________
Name/date/time that MRI technologist notified:_______________________________________________________
Can the patient undergo an MRI with this device? YES/NO
Does the device representative need to be present? YES/NO
List any restrictions on the type/time of MRI scans _____________________________________________________

| **KNOWN CRANIAL HISTORY** | If yes, operative report in chart? | If patient has had previous Gamma Knife, name of person who reviewed in Gamma Plan and date | If yes, treatment summary, and/or disc of treatment plan obtained? (Specify) | RN initials |
|---|---|---|---|---|
| Previous craniotomy? YES/NO | YES/NO | | | |
| Previous head/neck radiation? YES/NO | | | | |
| Previous whole brain radiation? YES/NO | | | | |
| Previous Gamma Knife? YES/NO | | | | |

Gray = not applicable

For patients with vestibular schwannoma, is an audiogram in the chart? YES/NO/NA

For patients with pituitary or optic nerve pathway tumors, is visual acuity documented in the chart? YES/NO/NA

| **MEDICATION** | **DOSE** | **FREQUENCY** | **PRESCRIPTION COMPLETE** | **RN Initials** |
|---|---|---|---|---|
| Dexamethasone | | | | |
| Keppra | | | | |
| PPI | | | | |
| Ativan protocol | | | | |
| | | | | |

**Patient Intake Form (continued). Has patient received chemotherapy or immunotherapy in the past month?**

If yes, agent and date of last dose___________________________________________________

If last dose within 1 week of Gamma Knife, has a physician been notified?________________________

| | Yes/No/NA | Date of H&P (must have been performed within 30 days of Gamma Knife) | Is patient cleared for moderate sedation? | Does patient need cardiac clearance? |
|---|---|---|---|---|
| H&P completed? | | | | |
| Orders entered into Epic | | | | |
| Medications updated in Epic | | | | |
| Medical/surgical history update in Epic | | | | |
| Allergies updated in Epic | | | | |

**LAB Results**: Date Collected:_________________________ (Lab results are valid for 30 days from date of collection)
GFR:_________________________ (<30 no gadolinium; 31-59 single dose; ≥ 60 double dose)
Creatinine:____________________ (≥1.5 no CT dye)
Does the patient need a pregnancy test the morning of Gamma Knife per Jewish Hospital Policy? YES/NO
Does the patient need a repeat renal panel the morning of Gamma Knife? YES/NO

| | **Insurance ID** | **Date Notified** | **RN Initials** |
|---|---|---|---|
| **Insurance** | | | |
| **Scheduling** | | | |
| **Anesthesia** | | | |

Notes__________________________________________________________________________________________
______________________________________________________________________________________________
______________________________________________________________________________________________
______________________________________________________________________________________________

| | RN Signature | RN Initials |
|---|---|---|
| Signature | | |
| Signature | | |

*This Patient Intake Form has been reviewed for completion prior to Gamma Knife radiosurgery by:

______________________________________________________________________________________________

**Pre-Procedure Checklist.** On the day of the procedure, this form collects the critical information that will be necessary for a smooth performance during time out for frame placement.

1. Has the patient ever undergone cranial surgery? (Yes/No)

   If yes, is the surgical site marked? (Yes/No/NA)

2. Has the patient ever received radiation to the head or neck? (Yes/No)

   If yes, is the dose summary, dosimetry, and/or plan available? (Yes/No/NA)

3. Has the patient received chemotherapy or immunotherapy within the past month? (Yes/No)

   If yes, list the agent(s) and date(s) of last treatment:

   -
   -

4. List the procedure-specific medications taken by patient this morning:

   -
   -
   -

5. What is the patient's GFR? ***

   GFR 0-30 ➔ no gadolinium
   GFR 31-59 ➔ single-dose gadolinium
   GFR ≥ 60 ➔ double-dose gadolinium

6. Does patient require a pregnancy test per hospital policy? (Yes/No)

   If yes, the result is: (Negative/Positive/NA)

**Frame Placement Time Out.** This form, similar to a standard time-out form used in the operating room, confirms patient identity, procedure, site of treatment, and other necessary information.

1. Patient states name and birthdate correctly? (Yes/No)

2. Procedure listed on consent: G-Frame placement and Gamma Knife radiosurgery for ***

3. Is this the correct procedure? (Yes/No)

4. Are the consents signed? (Yes/No)

5. Does the patient have only one benign target or lesion? (Yes/No)

    If yes, what side are we treating? (Right/Left/NA)

    Is this the correct side? (Yes/No/NA)

    Is the side marked for laterality? (Yes/No/NA)

6. Have the CT/MRI scans been reviewed today? (Yes/No)

7. Has the interim history and physical form been completed? (Yes/No)

8. Has the neurosurgeon reviewed the Pre-Procedure Checklist? (Yes/No)

9. Does the patient require a pregnancy test per hospital policy? (Yes/No)

    If yes, the result is: (Negative/Positive/NA)

10. Are all present in agreement? (Yes/No)

Those present for time out: ***

**Physics Checklist.** This form prompts the medical physicist to validate and complete 32 quality assurance checks at various stages.

*Patient Name:* ________________________________________

*Patient Identifier 2:* ____________________________________

*Date:* ______________________________________________

| **Items Reviewed** | Pre-planning Chart QA | Treatment Planning Chart Check | Post-Treatment Chart Check |
|---|---|---|---|
| Gamma Knife daily QA approved | | | |
| Patient timeout prior to frame placement | | | |
| Site/s and laterality identified | | | |
| Proper imaging studies requested and imported | | | |
| Patient identifiers (Name / MRN / DOB) correct in Gamma Plan | | | |
| Mean definition error (mm) | MPRAGE Pre: Post: | CISS Pre: Post: | CT soft: bone: |
| Tolerance < 0.6 mm | Other T1: | Other T2: | Other CT: |
| Frame mean definition errors within tolerance | | | |
| Imaging study orientation fiducial on correct side | | | |
| Spatial agreement between MRI & CT tolerance <1 mm total | | | |
| Frame and skull measurements checked | | | |
| Matrices appropriate for each target | | | |
| Authorized user (AU) prescribed dose to each target | | | |
| Target volumes accepted by neurosurgeon and AU | | | |
| Collisions checked | | | |
| Plan approved in Gamma Plan on correct date | | | |
| Plan printed | | | |

| | | | |
|---|---|---|---|
| Dose volume histograms printed | | | |
| Transverse, sagittal, and coronal views printed | | | |
| Plan exported to Gamma Knife | | | |
| Gamma Check calculation acceptable (# of shots) | | | |
| Plan – correct patient (name/MR/DOB) | | | |
| Plan – correct Tx date | | | |
| Plan – correct prescription | | | |
| Plan – signed by neurosurgeon, AU, and AMP | | | |
| Imaging reviewed by radiologist | | | |
| Plan – source decay double checked by physics | | | |
| Correct patient opened at Gamma Knife console | | | |
| Correct patient verified in treatment room (timeout) | | | |
| Laterality correct in room (if applicable) | | | |
| Treatment completed as planned | | | |
| Treatment initiated by licensed operator or AU | | | |
| System and/or operator's report printed | | | |
| Performed by: | Name: | | Initial: |

**Radiation Delivery Time Out.** Like the *Frame placement time out*, this form pauses the team to confirm patient identity and treatment plan, and document key information before delivering treatment.

1. Patient states name and birthdate correctly? (Yes/No)
2. Procedure listed on consent: Gamma Knife radiosurgery for ***
3. Is this the correct procedure? (Yes/No)
5. Does the patient have only one benign target or lesion? (Yes/No)

   If yes, what side are we treating? (Right/Left/NA)

   Is this the correct side? (Yes/No/NA)

   Is the side marked for laterality? (Yes/No/NA)

6. Has the final radiologist report been reviewed? (Yes/No)
7. Has patient received IV dexamethasone prior to radiation delivery? (Yes/No/NA)
8. Does the patient require Keppra or Ativan prior to treatment delivery? (Yes/No/NA)
9. Have the pin torques been rechecked using the pre-calibrated torque wrench? (Yes/No)
10. Is a cone beam CT scan required prior to treatment delivery to confirm frame stability? (Yes/No)
11. Are all present in agreement? (Yes/No)
12. Those present for time out: ***