Q1: SURVEY BEFORE PSMA PET/CT Ga-68 PSMA-11 SCAN

PATIENT INFORMATION

Last name: _____ First Name: _____

Date of Birth: _____ Medical Record Number: _____

1. **Indicate where do you know/think that prostate cancer disease is located before ^{68}Ga-PSMA PET (select all that apply):**
   - ☐ Prostate fossa
   - ☐ intrapelvic lymph nodes
   - ☐ extrapelvic lymph nodes
   - ☐ bone
   - ☐ extrapelvic soft-tissue (non-bone)

2. **If ^{68}Ga-PSMA PET was not available, which other imaging test would you order?**
   - ☐ MRI
   - ☐ CT
   - ☐ FDG PET
   - ☐ Acetate PET
   - ☐ Choline PET
   - ☐ Fluciclovine PET
   - ☐ ProstaScint
   - ☐ Bone scan
   - ☐ Fluoride PET
   - ☐ Other: _____

3. **If ^{68}Ga-PSMA PET was not available, which treatment would you recommend/perform?**
   - ☐ Surgery – Prostatectomy
   - ☐ Surgery – Pelvic lymph node dissection
   - ☐ Surgery – Elective lymphadenectomy
   - ☐ XRT - Prostate fossa
   - ☐ XRT - Whole pelvic lymph nodes
   - ☐ XRT - Single pelvic lymph node
   - ☐ XRT - Extra-pelvic metastasis
   - ☐ Other focal therapy (please describe below):
   - ☐ Androgen deprivation therapy
   - ☐ Chemotherapy
   - ☐ PSMA Radionuclide therapy
   - ☐ Bone targeted Radionuclide therapy
   - ☐ Immunotherapy
   - ☐ Active surveillance
   - ☐ Other (please describe below):

Referring Physician Name: _____

Signature: _____ Date: _____

Q2: SURVEY WITHIN 4 WEEKS AFTER PSMA PET/CT Ga-68 PSMA-11 SCAN

PATIENT INFORMATION

Last name: _____ First Name: _____

Date of Birth: _____ Medical Record Number: _____

1. **Indicate where do you know/think that prostate cancer disease is located after ^{68}Ga-PSMA PET (select all that apply):**
   - ☐ Unknown
   - ☐ Prostate fossa
   - ☐ intrapelvic lymph nodes
   - ☐ extrapelvic lymph nodes
   - ☐ bone
   - ☐ extrapelvic soft-tissue (non-bone)

2. **Did the ^{68}Ga-PSMA PET enable you to avoid any diagnostic procedure?**

☐ Yes
☐ No

If yes, which one? _____

3. **Did the ^{68}Ga-PSMA PET result in any diagnostic procedure?**

☐ Yes
☐ No

If yes, which one? _____

4. **Based on ^{68}Ga-PSMA PET findings what is your treatment plan?**

☐ Surgery – Prostatectomy
☐ Surgery – Pelvic lymph node dissection
☐ Surgery – Elective lymphadenectomy
☐ XRT - Prostate fossa
☐ XRT - Whole pelvic lymph nodes
☐ XRT - Single pelvic lymph node
☐ XRT - Extra-pelvic metastasis
☐ Other focal therapy (please describe below):
☐ Androgen deprivation therapy
☐ Chemotherapy
☐ PSMA Radionuclide therapy
☐ Bone targeted Radionuclide therapy
☐ Immunotherapy
☐ Active surveillance
☐ Other (please describe below):

Referring Physician Name: _____

Date: _____ Signature: _____

FOLLOW-UP Q3 Ga-68 PSMA-11 SCAN

PATIENT INFORMATION

Last name: _____ First Name: _____

Date of Birth: _____ Medical Record Number: _____

1. Were any of the following diagnostic procedure performed after the ^{68}Ga-PSMA PET/CT?

☐ Biopsy/Surgery
☐ MRI
☐ Bone scan
☐ CT
☐ PET/CT
☐ Other :

If Yes, please indicate the date and the findings :

_____

_____

2. On the post scan questionnaire (questionnaire #2) you indicated an intended treatment management of:

☐ Surgery – Prostatectomy
☐ Surgery – Pelvic lymph node dissection
☐ Surgery – Elective lymphadenectomy
☐ XRT - Prostate fossa
☐ XRT - Whole pelvic lymph nodes
☐ XRT - Single pelvic lymph node
☐ XRT - Extra-pelvic metastasis
☐ Other focal therapy (please describe below):
☐ Androgen deprivation therapy
☐ Chemotherapy
☐ PSMA Radionuclide therapy
☐ Bone targeted Radionuclide therapy
☐ Immunotherapy
☐ Active surveillance
☐ Other (please describe below):

3. Please indicate whether the intended management noted on the post scan questionnaire (questionnaire #2) was implemented:

☐ Yes
☐ No

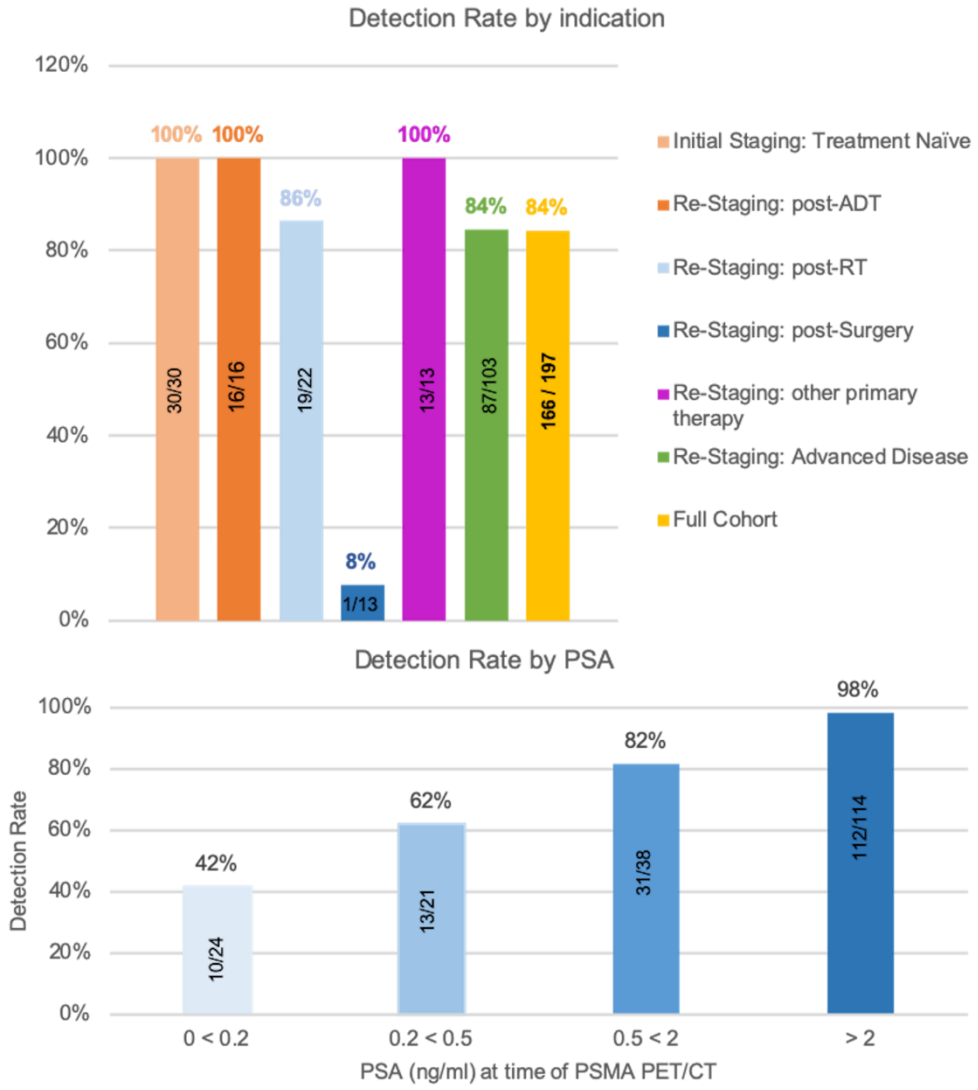
If No, please indicate why: _____

_____

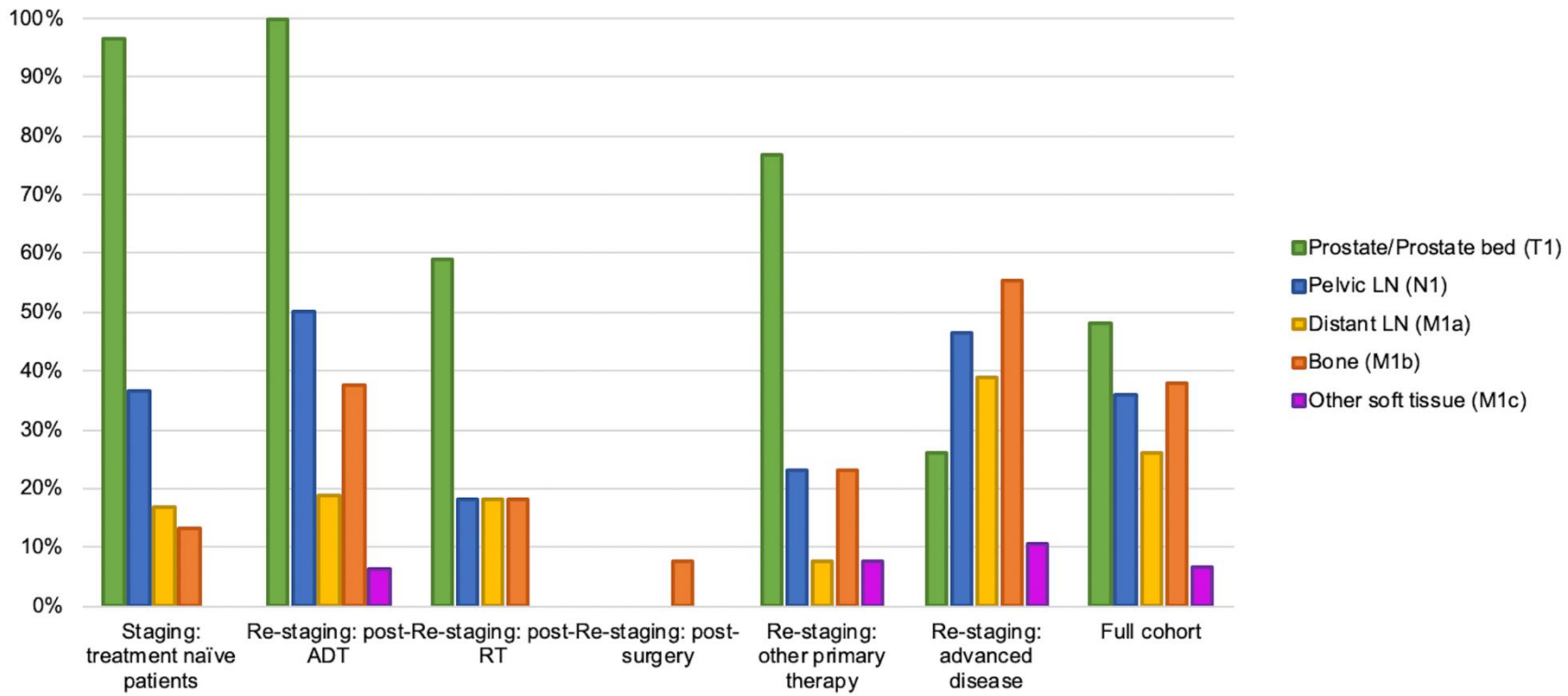
Referring Physician Name: _____

Date: _____ Signature: _____

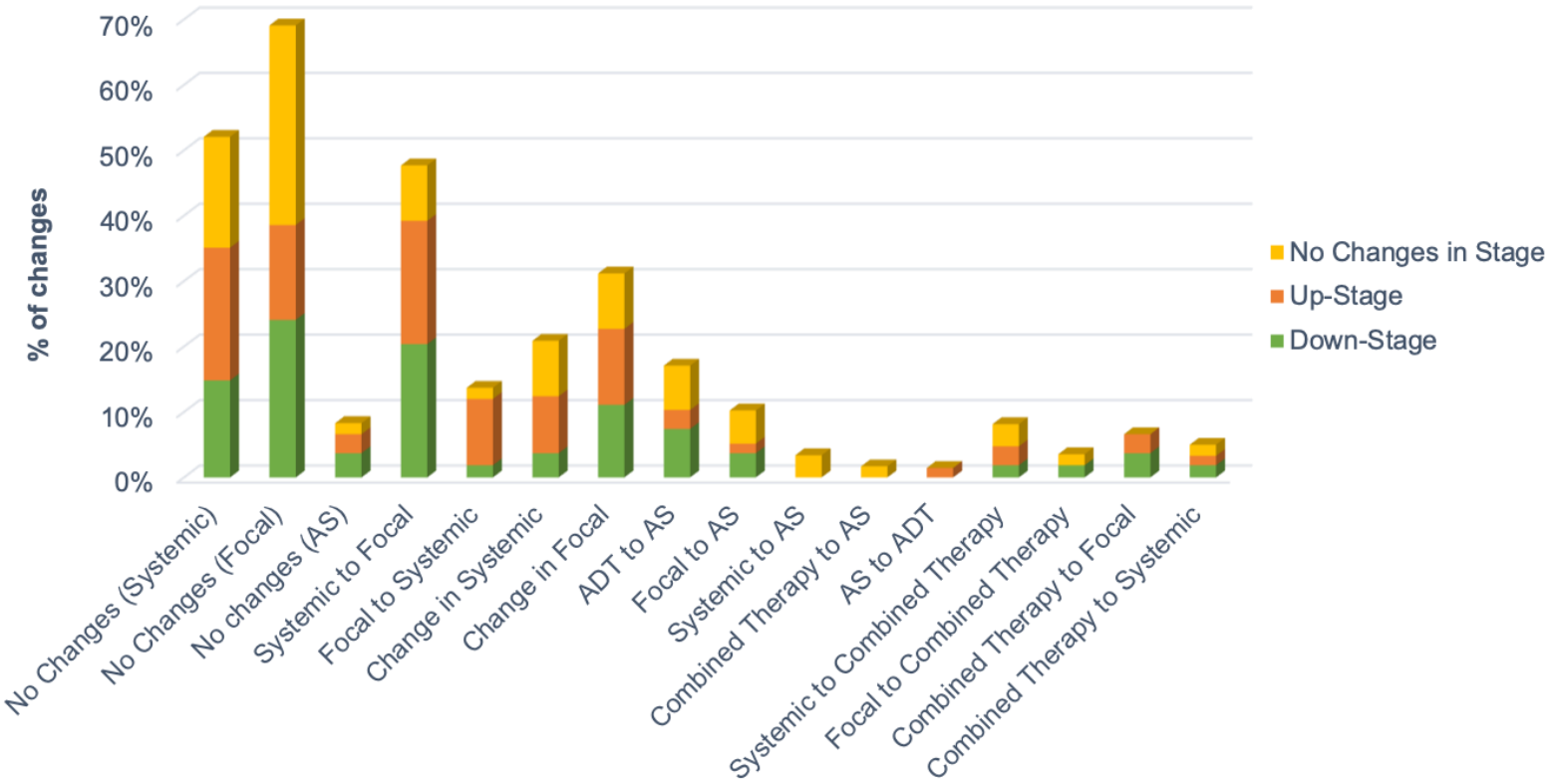
Supplemental Figure 1: Questionnaires.



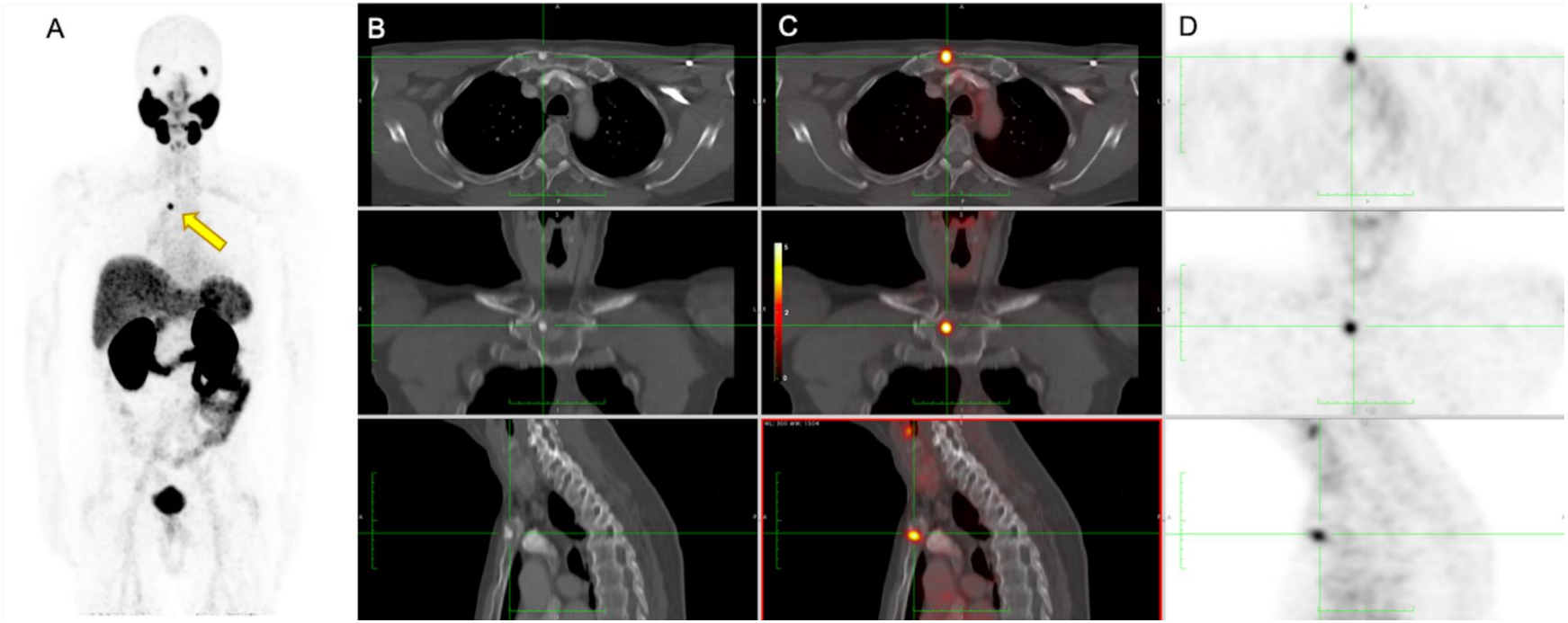
Supplemental Figure 2. Detection rate stratified by sub-groups (upper image) and PSA levels (lower image).



Supplemental Figure 3: Location of disease based on PSMA PET/CT results. ADT: androgen deprivation therapy; RT: radiation therapy; LN: lymph nodes



Supplemental Figure 4. Impact of PSMA PET/CT imaging on management stratified by changes in stage.



Supplemental Figure 5. Example of a change in management: 54-year-old patient with increasing serum PSA levels post multiple treatments (advanced disease sub-group). PSA at time of PSMA PET/CT was 0.29 ng/ml. Radical prostatectomy on 3/2006 (Gleason Score 3+4=7 with extracapsular extension) and adjuvant radiation therapy on the prostatic fossa on 9/2007. In 2010, due to increasing PSA values, the patient started first-line hormonal therapy and developed castration-resistant prostate cancer in 2013. The patient was treated with two different immunotherapies with temporary reduction of PSA levels, but in 4/2017 serum PSA levels started to increase. The intended treatment before PSMA PET/CT was continuation of ADT. PSMA PET/CT on 4/2018 detected a single focus

of increased uptake in the sternum. The lesion was treated with stereotactic RT on 5/2018. PSA started decreasing in 10/2018, became undetectable on 4/2019 and remained so until the day this manuscript was finalized. ^{68}Ga-PSMA-11 PET/CT MIP (A), CT (row B), fusion PSMA PET/CT (row C) and PET (row D).

	Staging: treatment naïve patients	Re-Staging: Post-ADT	Re-staging: Post-RT	Re-staging: Post-surgery	Re-staging: Advanced Disease	Re-staging: other primary therapy	TOT	Down-stage	Up-stage	No Change in stage
No Changes (Systemic)	1 (4%)	2 (13%)	1 (6%)	0	28 (29%)	0	32 (18%)	8 (15%)	14 (20%)	10 (17%)
No Changes (Focal)	14 (50%)	7 (47%)	3 (17%)	7 (54%)	6 (6%)	4 (33%)	41 (23%)	13 (24%)	10 (14%)	18 (31%)
No changes (AS)	1 (4%)	0	1 (6%)	0	3 (3%)	0	5 (3%)	2 (4%)	2 (3%)	1 (2%)
Systemic to Focal	0	2 (13%)	4 (22%)	2 (15%)	19 (20%)	2 (17%)	29 (16%)	11 (20%)	13 (19%)	5 (8%)
Focal to Systemic	1 (4%)	1 (7%)	3 (17%)	0	4 (4%)	0	9 (5%)	1 (2%)	7 (10%)	1 (2%)
Change in Systemic	0	0	0	0	13 (14%)	0	13 (7%)	2 (4%)	6 (9%)	5 (8%)
Change in Focal	9 (32%)	2 (13%)	0	1 (8%)	2 (2%)	5 (42%)	19 (10%)	6 (11%)	8 (12%)	5 (8%)
ADT to AS	0	0	2 (11%)	2 (11%)	6 (6%)	0	10 (5%)	4 (7%)	2 (3%)	4 (7%)
Focal to AS	1 (4%)	0	2 (11%)	2 (15%)	0	1 (8%)	6 (3%)	2 (4%)	1 (1%)	3 (5%)
Systemic to AS	0	0	0	0	2 (2%)	0	2 (1%)	0	0	2 (3%)
Combined Therapy to AS	0	0	0	0	1(1%)	0	1 (1%)	0	0	1 (2%)
AS to ADT	0	0	1 (6%)	0	0	0	1 (1%)	0	1 (1%)	0
Systemic to Combined Therapy	0	0	0	0	5 (5%)	0	5 (3%)	1 (2%)	2 (3%)	2 (3%)
Focal to Combined Therapy	0	0	0	0	2 (2%)	0	2 (1%)	1 (2%)	0	1 (2%)
Combined Therapy to Focal	1 (4%)	0	0	0	3 (3%)	0	4 (2%)	2 (4%)	2 (3%)	0
Combined Therapy to Systemic	0	1 (7%)	0	0	2 (3%)	0	3 (2%)	1 (2%)	1 (1%)	1 (2%)
TOT	28 (100%)	15 (100%)	18 (100%)	13 (100%)	96 (100%)	12 (100%)	182 (100%)	54 (100%)	69 (100%)	59 (100%)
Tot No Change	16 (57%)	9 (60%)	5 (28%)	7 (54%)	37 (39%)	4 (33%)	78 (43%)			
Tot CHANGE	12 (43%)	6 (40%)	13 (72%)	6 (46%)	59 (61%)	8 (67%)	104 (57%)			

Supplemental Table 1. Detailed analysis of changes in management stratified by clinical indication and by changes in stage. In parenthesis are percentages by column.