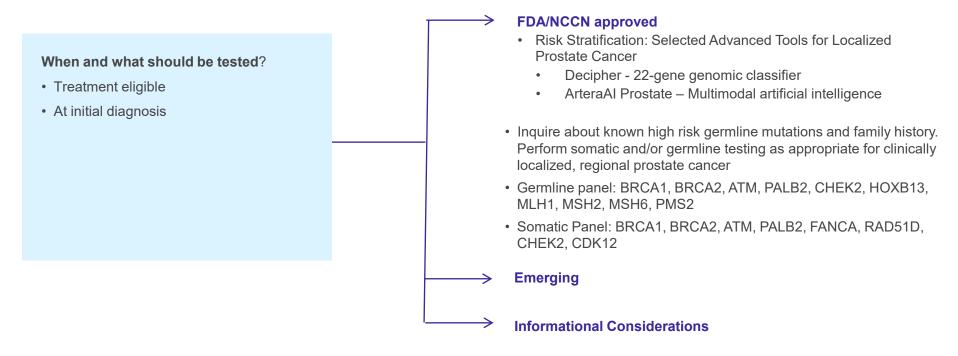
# Prostate

# **Early Stage**



Regular monitoring of PSA levels is required as standard of care. Relevant Testing Panel:

- Germline Panel: BRCA2, ATM, BRCA1, CHEK2, PALB2, GEN1, RAD51D, MLH1, MSH2, MSH6, PMS2, HOXB13
- Somatic Panel: Genes that encode proteins responsible for DNA damage repair via homologous recombination, including ATM, BRCA1/2, and CHEK2 (among others), as well as genes that encode proteins involved in mismatch repair



# Prostate

# Node Positive and Stage IV Newly Diagnosed and Recurrent Disease (somatic)

# When and what should be tested? Treatment eligible Node positive and Stage IV At initial diagnosis or upon progression

- Patients with hereditary risk syndromes
- Blood sample for germline testing
- Tissue sample for somatic testing
- Consider liquid biopsy if lack of tissue

## FDA/NCCN approved

- HRRm/Homologous Recombination Repair gene mutation (BRCA1, BRCA2, ATM, BARD1, BRIP1, CDK12, CHEK1, CHEK2, FANCA, FANCL, HOXB13, PALB2, RAD51B, RAD51C, RAD51D, RAD54L, ATR, MLH1, MSH2, MSH6, PMS2, MRE11A, NBN)
- MSI/dMMR
- NTRK
- TMB
- BRAF V600E
- · RET gene rearrangement
- HER2

## **Emerging**

- ZNF 750 is a novel prognostic marker in metastatic prostate cancer
- MRD

## Informational Considerations

- · Traditional histologic features
- AR-V7 splice variant testing for progression on prior hormonal therapy
- For regional or met disease ≥ N1 and Gleason score ≥ 7 or high risk:
  - Consider germline testing
- For treatment-naïve metastatic and Gleason score ≥ 7:
  - Consider somatic testing; retest after 2-3 lines of therapy
- · For castrate-resistant:
  - Consider comprehensive NGS if failed early on treatment; should include TMB, MSI, NTRK, BRCA 1/2

Regular monitoring of PSA levels is required as standard of care. Relevant Testing Panel:

- Germline Panel: BRCA2, ATM, BRCA1, CHEK2, PALB2, GEN1, RAD51D, MLH1, MSH2, MSH6, PMS2, HOXB13
- Somatic Panel: Genes that encode proteins responsible for DNA damage repair via homologous recombination, including ATM, BRCA1/2, and CHEK2 (among others), as well as genes that encode proteins involved in mismatch repair



# Bladder

## Stage II/IIIA

#### When and what should be tested?

- · At time of initial diagnosis
- · Tissue sample preferred
- · Consider liquid biopsy if there is a lack of tissue

## Who should be tested?

- All treatment eligible patients
- Performance status of ECOG 0-2
- Consider germline testing and genetic counselor referral especially if younger age at presentation (< 45 years) or family history of colon/endometrial cancer

## **FDA/NCCN Approved**

• n/a

## →Emerging

- NGS for patients with early bladder cancer for possible active surveillance based on RETAIN BLADDER TRIAL. Stage II-IIIA
- Ct DNA during and after neoadjuvant chemotherapy.
- MRD

#### Informational considerations

- ERCC-1 expression (cisplatin sensitivity)
- ERCC2 (cisplatin sensitivity)



# Bladder

# Stage IIIB/IV

#### When and what should be tested?

- · At time of initial diagnosis
- · Tissue sample preferred
- · Consider liquid biopsy if there is a lack of tissue

## Who should be tested?

- · Treatment eligible
- Performance status of ECOG 0-2
- Consider germline testing and genetic counselor referral especially if younger age at presentation (< 45 years) or family history of colon/endometrial cancer

## → FDA/NCCN Approved

- Consider comprehensive NGS panel if insurance allows (including NTRK\*)
- MSI/dMMR
- PD-L1
- TMB
- FGFR 3
- NTRK
- PIK3CA
- ERBB2/HER2
- CDKN2A

Based on tumor-agnostic approval

- · RET gene rearrangement
- BRAF V 600 E

## Emerging

• NECTIN4 expression

## Informational considerations

- ERCC-1 expression (cisplatin sensitivity)
- ERCC2 (cisplatin sensitivity)

