GENIE BPC PROSTATE 1.0-PUBLIC COHORT

MARCH 2025

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Release Notes

- The GENIE BPC Prostate 1.0-public dataset contains 1,116 Prostate patients from MSKCC, DFCI, VICC, and UHN.
- **Data Access:**
  - A subset of the data is available through cBioPortal. Both the genomic and clinical (phenomic) data can be evaluated in cBioPortal with opportunities for data exploration and visualization using a user-friendly interface.
  - The complete, post-processed data are available on Synapse.

- **What is included in GENIE BPC data?**
  - **Genomic Data:** Clinical-grade next-generation sequencing data for each patient from the GENIE Registry. Genomic profiling was performed between 2013 and 2018; patients were aged 37-88 at the time of genomic sequencing.
  - **Cancer Diagnosis:** Prostate cancer diagnosis is considered the index tumor for this patient cohort. There are data about other cancer diagnoses antecedent and subsequent to the prostate cancer.
  - **Prostate cancer-specific fields:** includes medical oncologist assessment of hormone/castrate/androgen-independent status, assessment of change in PSA level, PSA and Testosterone lab values, highest Gleason score recorded on pathology report, margin status on excision, and specialized histologic pattern across all prostate specimens, were also collected.
  - **Pathologic Information:** Each pathology specimen from diagnosis through death or last follow-up is curated with specimen type, site, and histology.
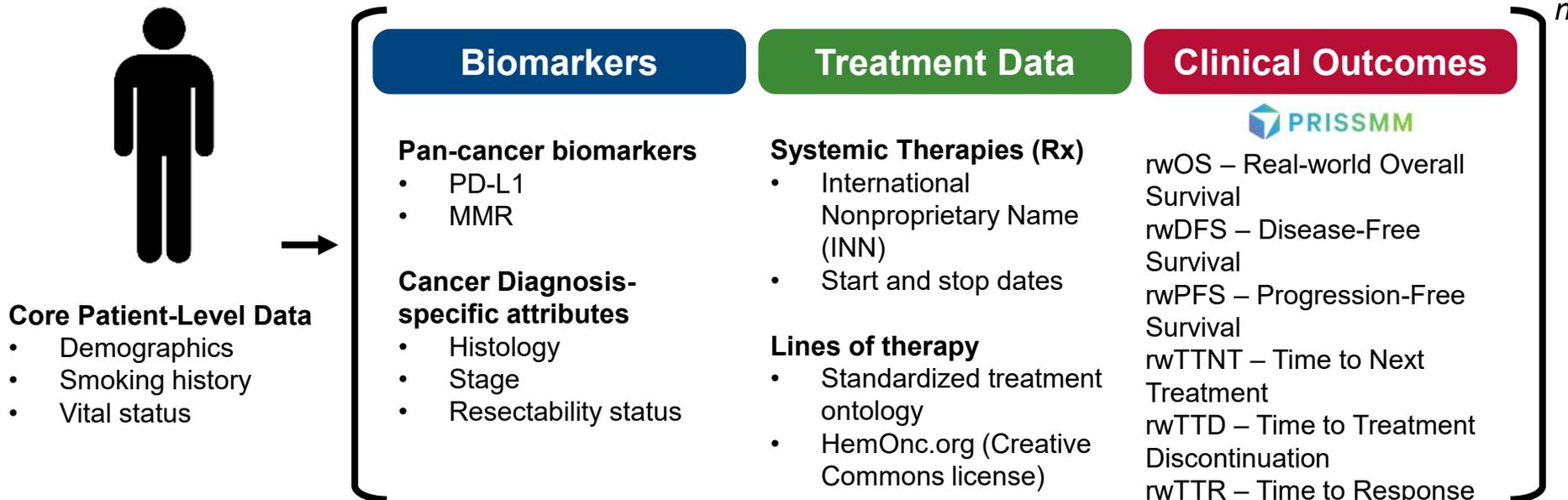
Release Notes

- **Treatment Histories:** All anti-neoplastic systemic therapies–intravenous and oral chemotherapies–are included in the data set. Dates are provided as intervals from diagnosis to start and stop of each drug. Investigational drugs are masked; no dosing information is included.

- **Imaging Information:** Each CT, MRI, PET-CT scan from diagnosis through death or last follow-up is curated for the presence or absence of cancer and an evaluation of whether the cancer was stable, responding, or progressing. These data are used to compute progression-free survival-imaging (PFS-I). Sites of tumor involvement are also recorded.

- **Medical Oncologist's Evaluations:** Medical oncology notes (1/month) have been curated to ascertain the presence or absence of cancer and whether the cancer was stable, responding, or progressing. These data are used to compute progression-free survival-medonc (PFS-M) from diagnosis through death or date of last follow-up.

- **Overall Survival:** Overall survival is based on death, with censoring at the date last known alive. Ascertainment of death varies by institution.

- **Additional Relevant Biomarkers:** Information about select biomarkers not included on the NGS panels, including PSA, Testosterone, PD-L1, MSI and MMR are also curated.

- **Patient-Reported Outcomes:** No patient-reported outcomes are available in this dataset.

- **Date Masking:** Exact dates are masked to preserve confidentiality; however, date intervals are available, allowing calculation of event times such as diagnosis, treatment start, treatment end, PFS-I, PFS-M, and OS.
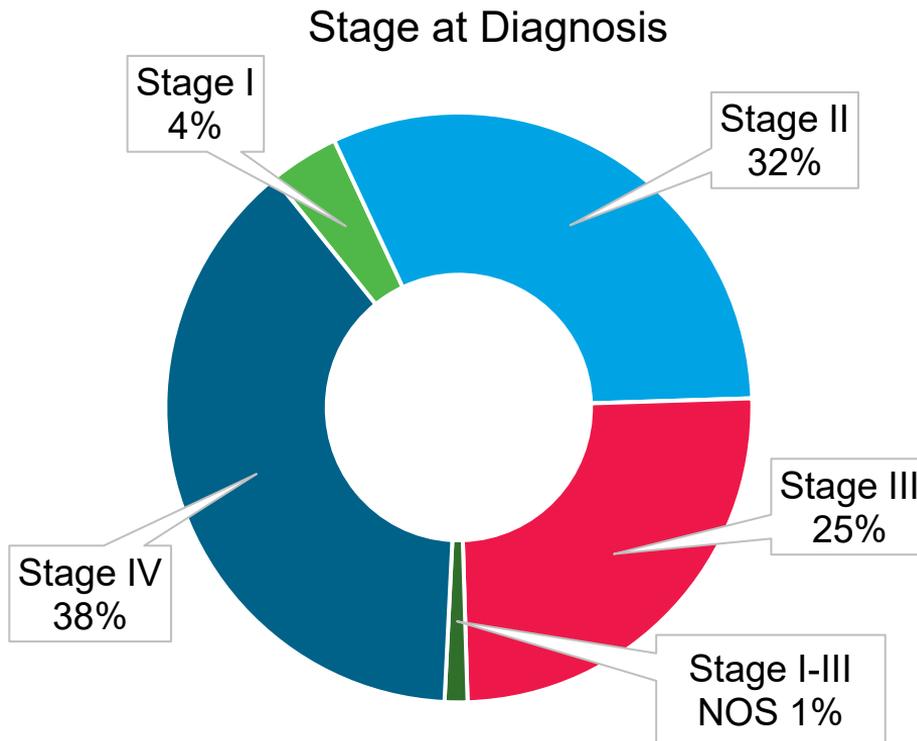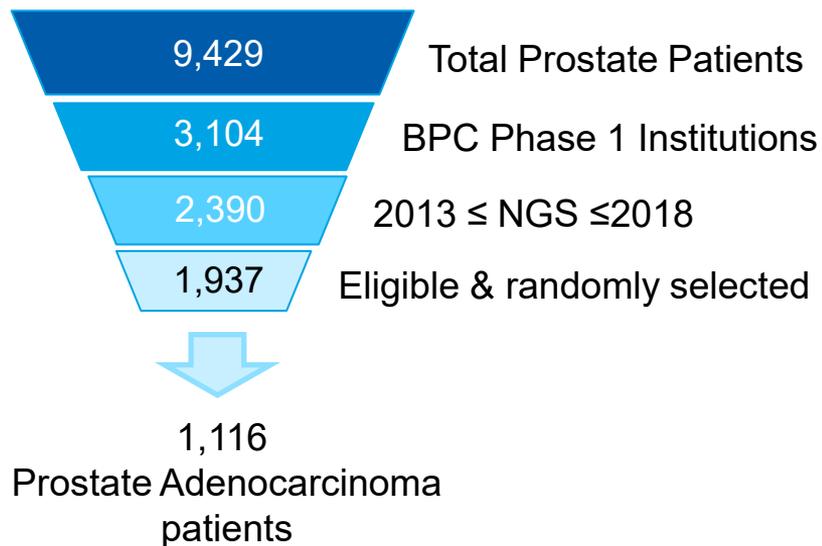
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- **Analytical Data Guide:** A more comprehensive overview of the data can be found in the data guide, and a description and location of the variables collected can be found in the variable synopsis spreadsheet.

- **Other Resources:** There is a dedicated project wiki that describes each of the files.

- <u>**Training Videos**</u>:
  - Demo of GENIE Data on the Synapse and cBioPortal Platforms: <u>here</u>
  - BPC- specific cBioPortal video training playlist: <u>here</u>

- **PRISSMM™:** the BPC PANC dataset uses the PRISSMM™ system licensed and enhanced by Memorial Sloan-Kettering Cancer Center, Memorial Hospital for Cancer and Allied Diseases, and Sloan-Kettering Institute for Cancer Research (collectively "MSK") is for informational and research purposes only. The content is not intended as a substitute for professional medical advice, diagnosis, or treatment. Original system and improvements © 2019-2022 Dana-Farber Cancer Institute, Inc. Additional functionality and enhancements © 2023 MSK. All rights reserved. Additional information can be found in the analytic data guide and information about licensing PRISSMM™ can be obtained by emailing PRISSMM@mskcc.org

GENIE BPC Data Model

Core Patient-Level Data
- Demographics
- Smoking history
- Vital status

Biomarkers

Pan-cancer biomarkers
- PD-L1
- MMR

Cancer Diagnosis-specific attributes
- Histology
- Stage
- Resectability status

Treatment Data

Systemic Therapies (Rx)
- International Nonproprietary Name (INN)
- Start and stop dates

Lines of therapy
- Standardized treatment ontology
- HemOnc.org (Creative Commons license)

Clinical Outcomes

PRISSMM

rwOS – Real-world Overall Survival
rwDFS – Disease-Free Survival
rwPFS – Progression-Free Survival
rwTTNT – Time to Next Treatment
rwTTD – Time to Treatment Discontinuation
rwTTR – Time to Response

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BPC Prostate 1.0-public: Demographics

Age at Diagnosis
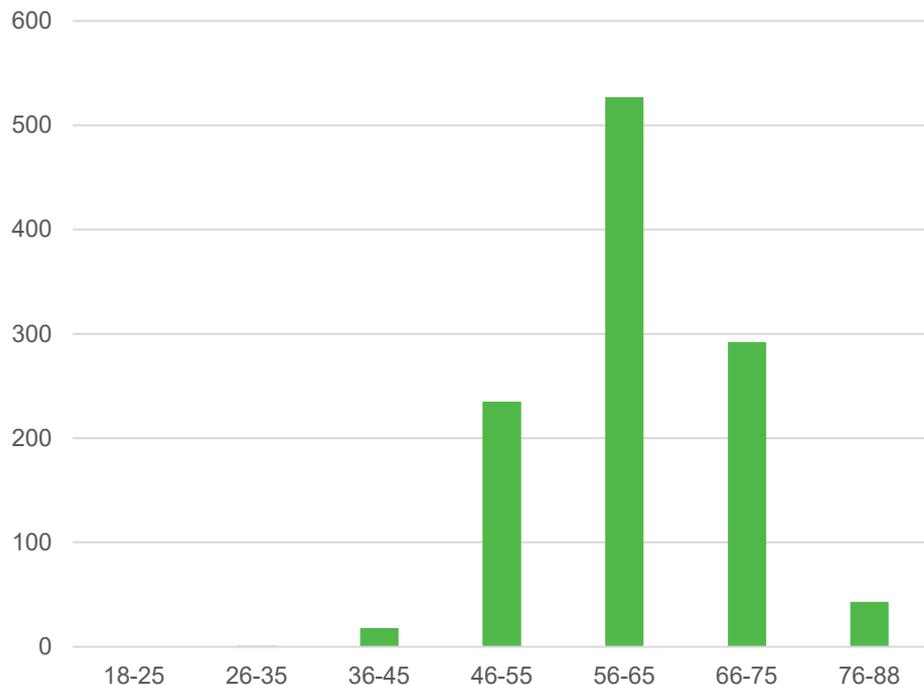
Sex

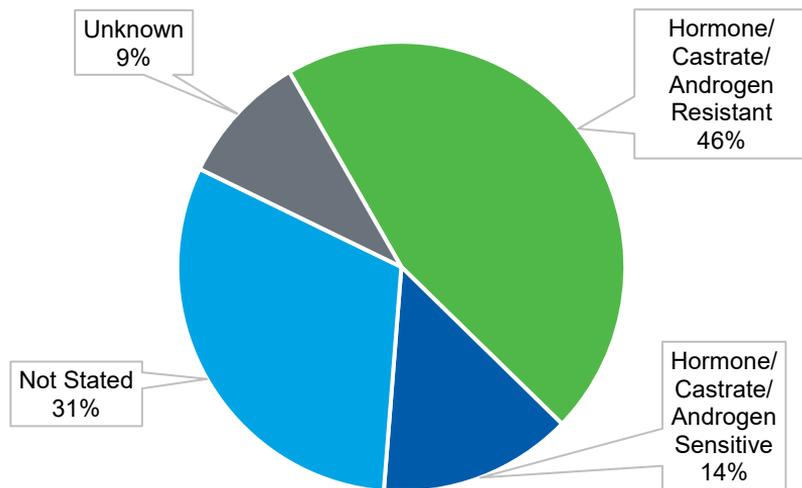|	#	Freq ▼
🟦 Male	☐ 1,113	99.7%
⬜ Unknown	☐ 3	0.3%

Primary Race

	#	Freq ▼
🟦 White	☐ 959	85.9%
🟥 Black	☐ 61	5.5%
⬜ Unknown	☐ 47	4.2%
🟧 Asian	☐ 27	2.4%
⬛ Other	☐ 20	1.8%
🟩 Not collected	☐ 2	0.2%

BPC Prostate 1.0-public:

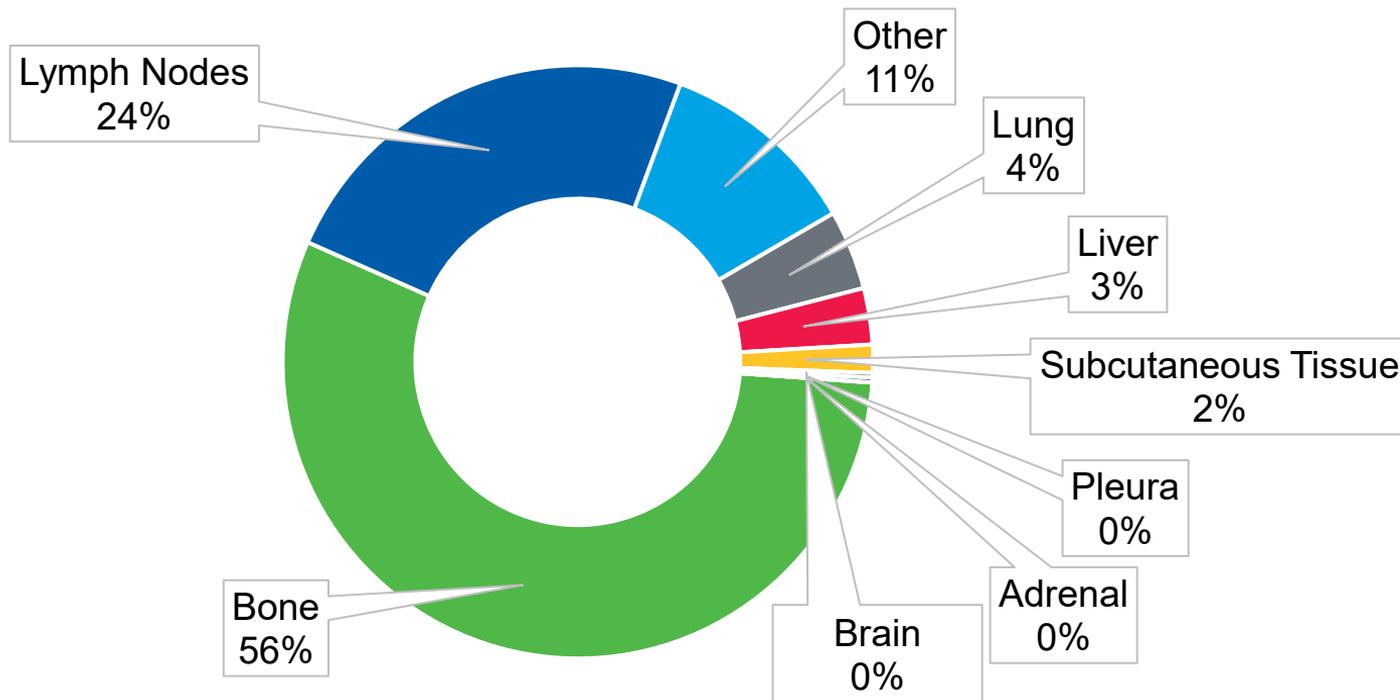## Medical Oncologist Assessment of Hormone/Castrate/Androgen-Independent Status

Pie chart:
- Hormone/Castrate/Androgen Resistant 46%
- Not Stated 31%
- Hormone/Castrate/Androgen Sensitive 14%
- Unknown 9%

Gleason Score at Time of Sample Acquisition

	#	Freq ▼
NA	449	40.1%
Gleason score 7	254	22.7%
Gleason score 9	251	22.4%
Gleason score 8	106	9.5%
Not documented in medical record	28	2.5%
Gleason score 10	19	1.7%
Gleason score 6	13	1.2%
Gleason score 4	1	<0.1%

BPC Prostate Cohort: Detailed Clinical Genomics

Mutated Genes

Gene	# Mut	#	Freq
TP53	316	309	25.2%
KMT2D	141	116	9.7%
FOXA1	126	116	12.7%
ATM	109	92	7.5%
SPOP	95	93	9.9%
PTEN	90	85	6.9%
KMT2C	89	71	9.7%
BRCA2	85	72	6.0%
APC	81	76	6.2%
CDK12	81	50	5.3%
AR	80	61	5.1%
CTNNB1	50	49	4.0%
MGA	49	43	5.3%
SETD2	49	42	3.5%
FAT1	48	43	4.7%
TET2	48	34	2.8%
PIK3CA	46	42	3.4%
ASXL1	45	42	3.5%

Structural Variants

Gene	# SV	#	Freq
TMPRSS2	328	299	30.8%
ERG	245	244	25.6%
TP53	17	15	1.3%
FOXA1	14	14	1.6%
ETV1	12	11	0.9%
PTEN	11	11	0.9%
KMT2D	9	8	0.7%
KMT2C	7	7	1.0%
ETV4	8	6	1.0%
APC	6	5	0.4%
AR	6	5	0.4%
BRAF	6	5	0.4%
EP300	5	5	0.4%
FGFR1	5	5	0.4%
PIK3R1	5	5	0.4%
SETD2	5	5	0.4%
ACPP	4	4	NA
ASXL1	4	4	0.3%

Copy Number Alterations

Gene	Cytoband	CNA	#	Freq
AR	Xq12	AMP	159	13.6%
PTEN	10q23.31	HOMDEL	141	12.1%
KLLN	10q23.31	HOMDEL	20	9.5%
PRDM14	8q13.3	AMP	28	7.4%
PREX2	8q13.2	AMP	26	6.4%
MYC	8q24.21	AMP	65	5.6%
RUNX1T1	8q21.3	AMP	12	5.0%
AGO2	8q24.3	AMP	18	4.7%
ELOC	8q21.11	AMP	35	4.3%
RSPO2	8q23.1	AMP	10	4.2%
LYN	8q12.1	AMP	15	3.7%
ABL2	1q25.2	AMP	1	3.6%
DUSP4	8p12	HOMDEL	13	3.4%
BCL2L2	14q11.2	AMP	1	3.3%
KLHL6	3q27.1	AMP	1	3.3%
RECQL4	8q24.3	AMP	33	3.3%
RB1	13q14.2	HOMDEL	38	3.3%
CYSLTR2	13q14.2	HOMDEL	12	3.2%
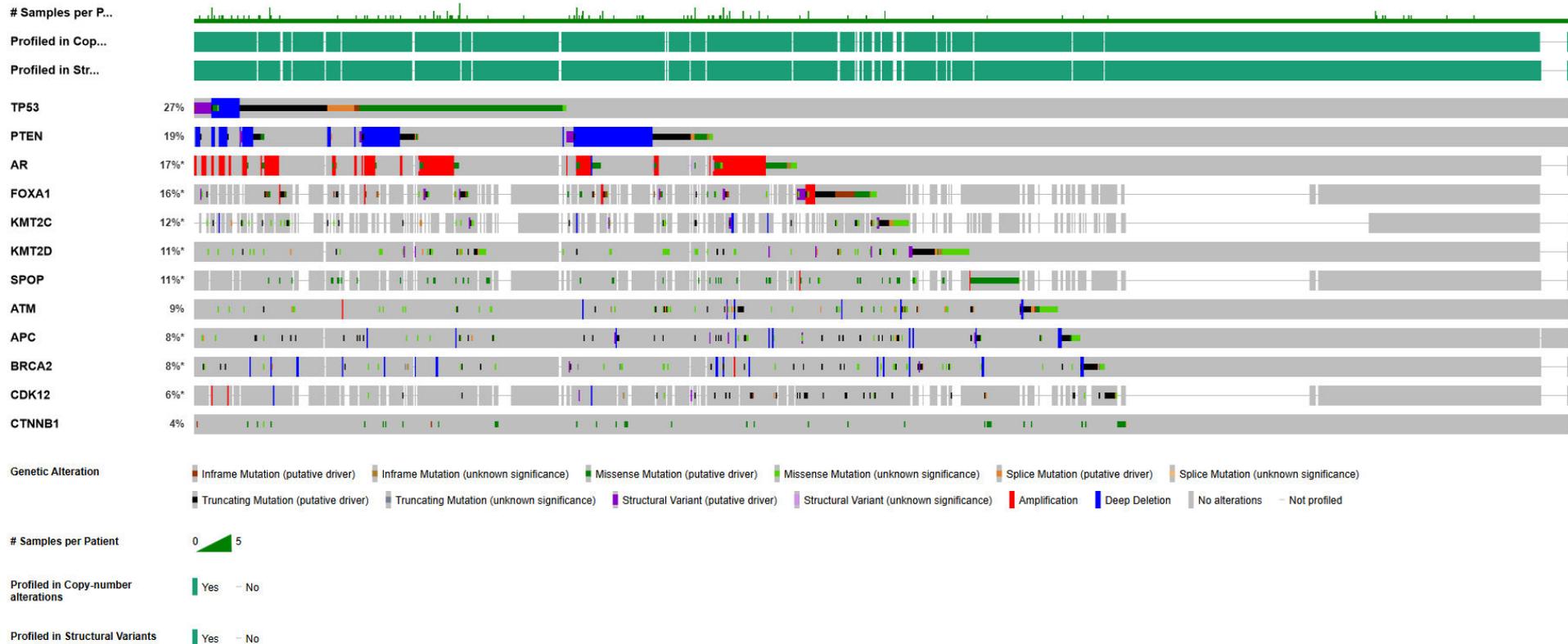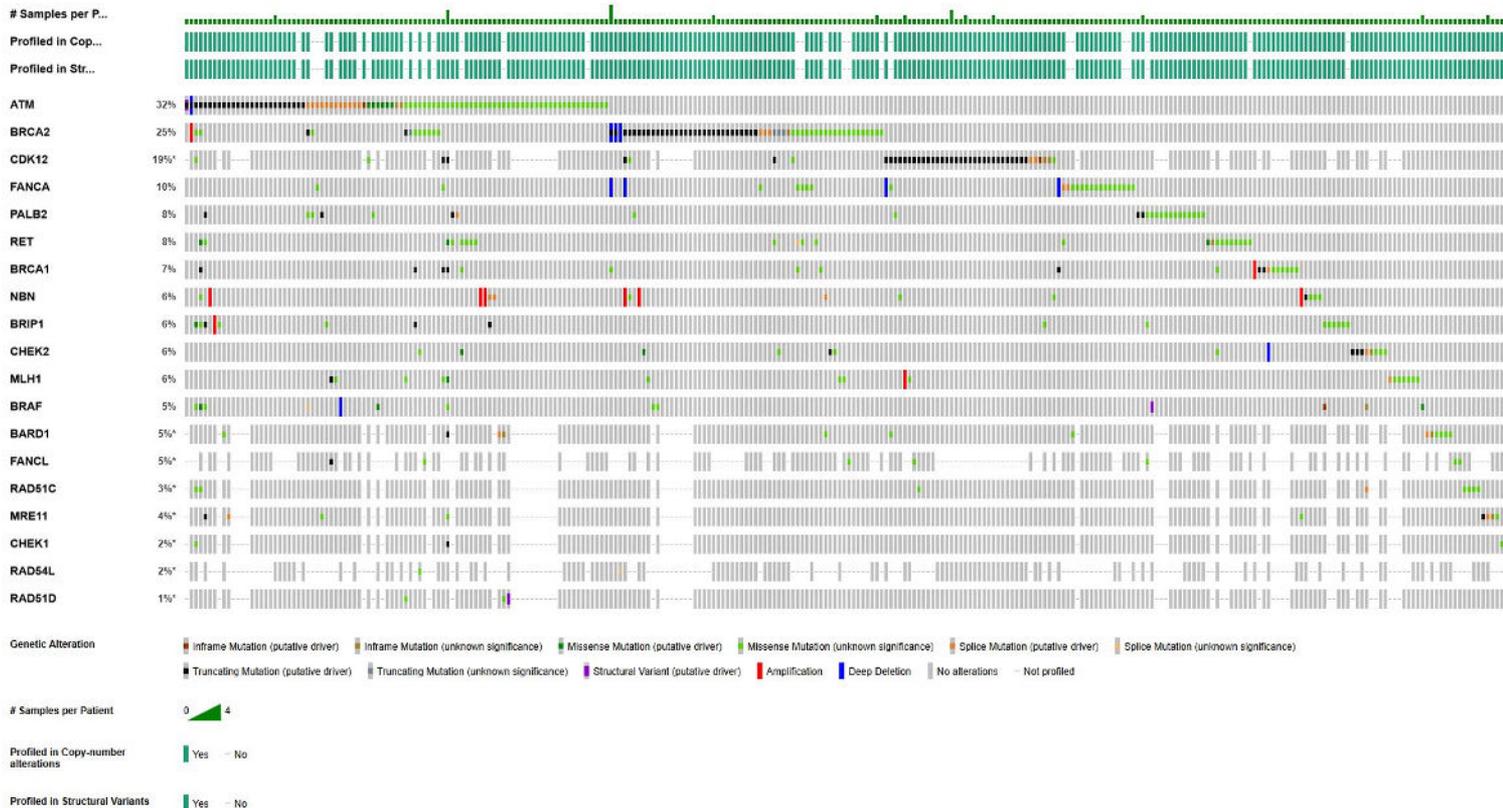
Number of cancer-directed drug regimens curated for each patient

Treatments by Patient

Treatment		# ▼
Leuprolide	☐	798
Bicalutamide	☐	627
Abiraterone Acetate	☐	438
Docetaxel	☐	423
Enzalutamide	☐	404
Degarelix	☐	305
Investigational Drug	☐	231
Cabazitaxel	☐	215
Carboplatin	☐	165
Radium RA 223 Dichloride	☐	148
Sipuleucel T	☐	73
Goserlin Acetate	☐	65
Nilutamide	☐	59
Olaparib	☐	54
Triptorelin	☐	38
Pembrolizumab	☐	34
ADT LHRH agonist not specified	☐	30

Treatments by Sample (pre- and post-)

Treatment	Pre / Post		# ▼
Leuprolide	Pre	☐	496
Leuprolide	Post	☐	399
Bicalutamide	Pre	☐	350
Bicalutamide	Post	☐	348
Docetaxel	Pre	☐	347
Docetaxel	Post	☐	146
Abiraterone Acetate	Pre	☐	321
Abiraterone Acetate	Post	☐	187
Enzalutamide	Pre	☐	287
Enzalutamide	Post	☐	181
Cabazitaxel	Pre	☐	215
Cabazitaxel	Post	☐	47
Degarelix	Pre	☐	209
Degarelix	Post	☐	159
Investigational Drug	Pre	☐	186
Investigational Drug	Post	☐	97

Cancer-directed Drug Regimens (Includes regimens ever received irrespective of line or stage)

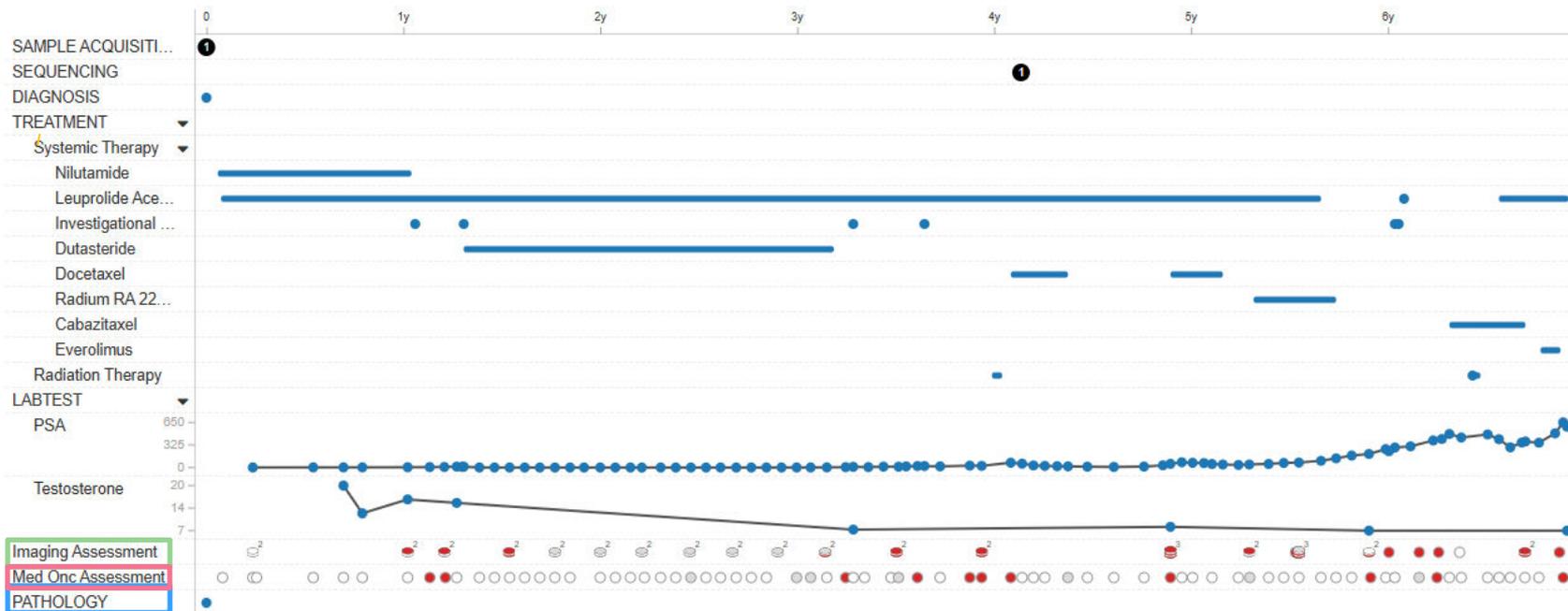| Regimen	# of patients
Docetaxel + Leuprolide/Degarelix	423
Docetaxel + Enzalutamide	304
Docetaxel + Abiraterone Acetate	287
Carboplatin + Docetaxel	152

Longitudinal Data Collection

Sample Patient

Disease Status by Medical Oncology Note   Disease Status by Imaging   Pathology Reports

PFS-M= 17.50 months

PFS-I= 12.04 months

* Not adjusted for delayed entry
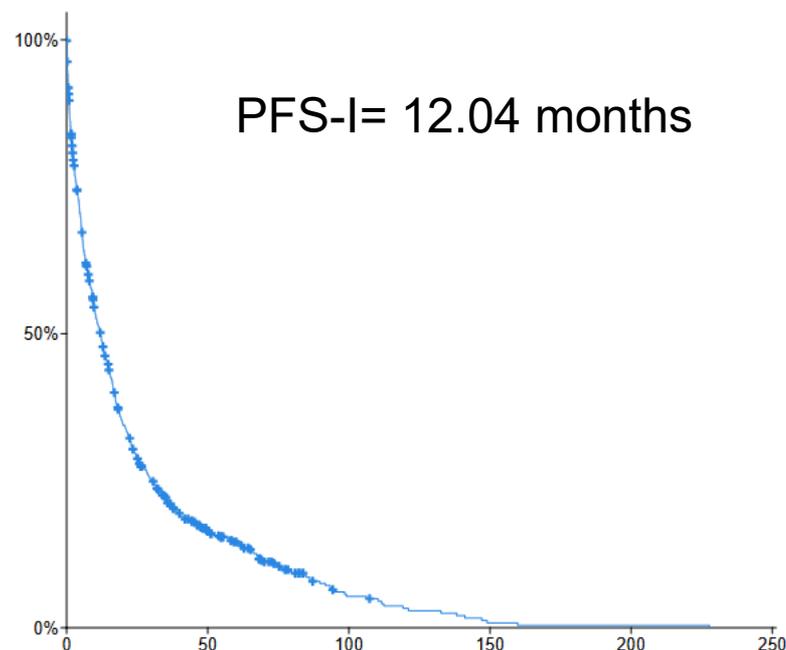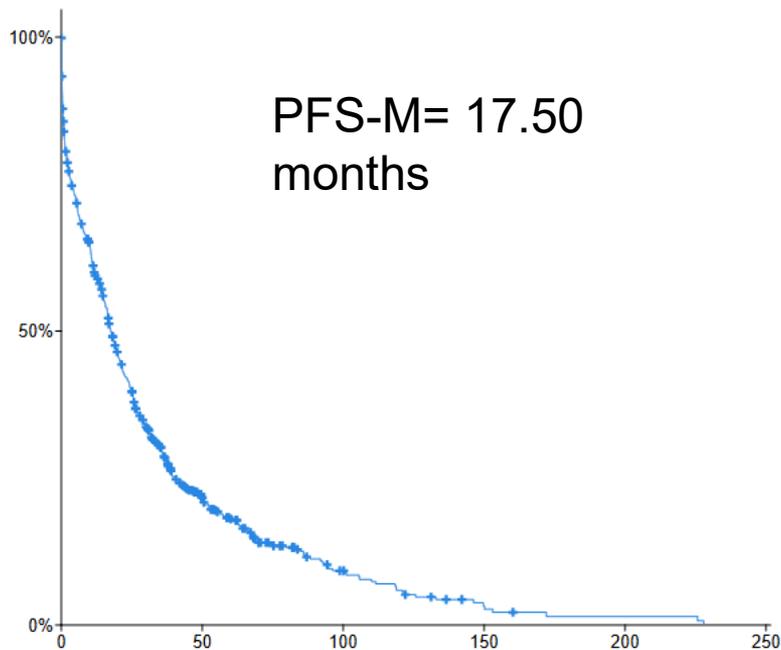
- PFS-M and PSF-I are available by regimen for those regimens containing greater than 10 patients

OS by Stage at Diagnosis
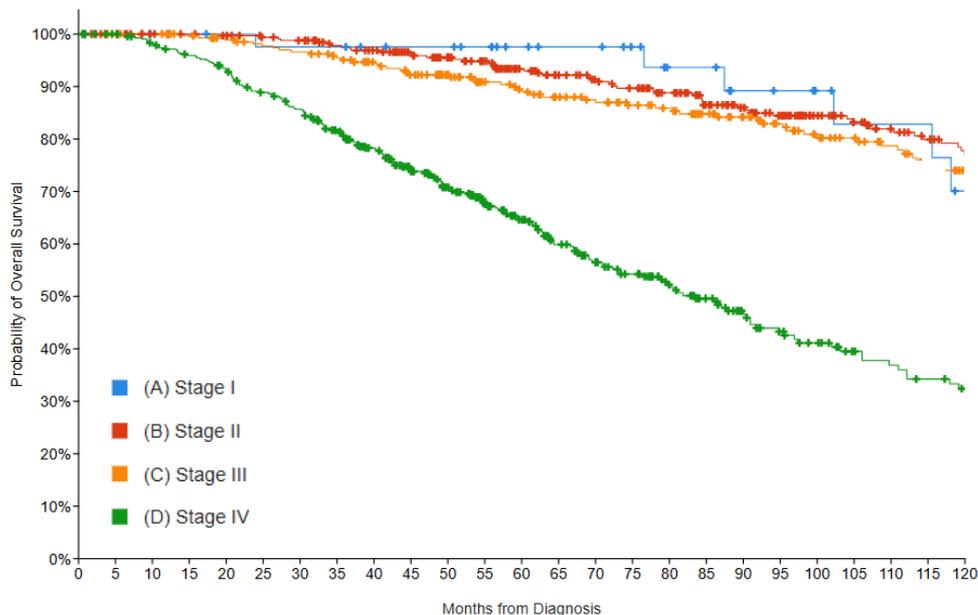
OS all stages= 157 months
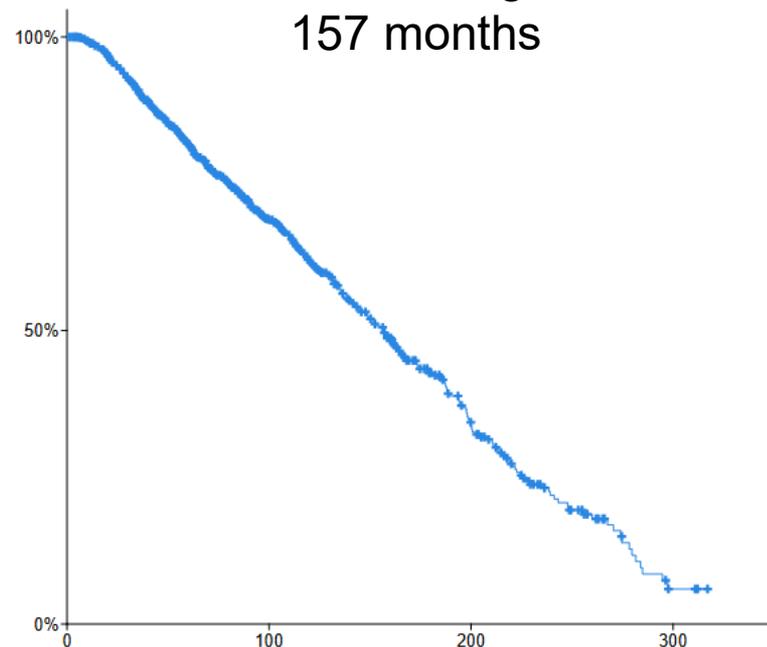
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