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Targeted Next Generation Sequencing in Metastatic Castration Resistant Prostate Cancer (mCRPC): Experience from Two Tertiary Centres

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Disclosures

The authors have no disclosures

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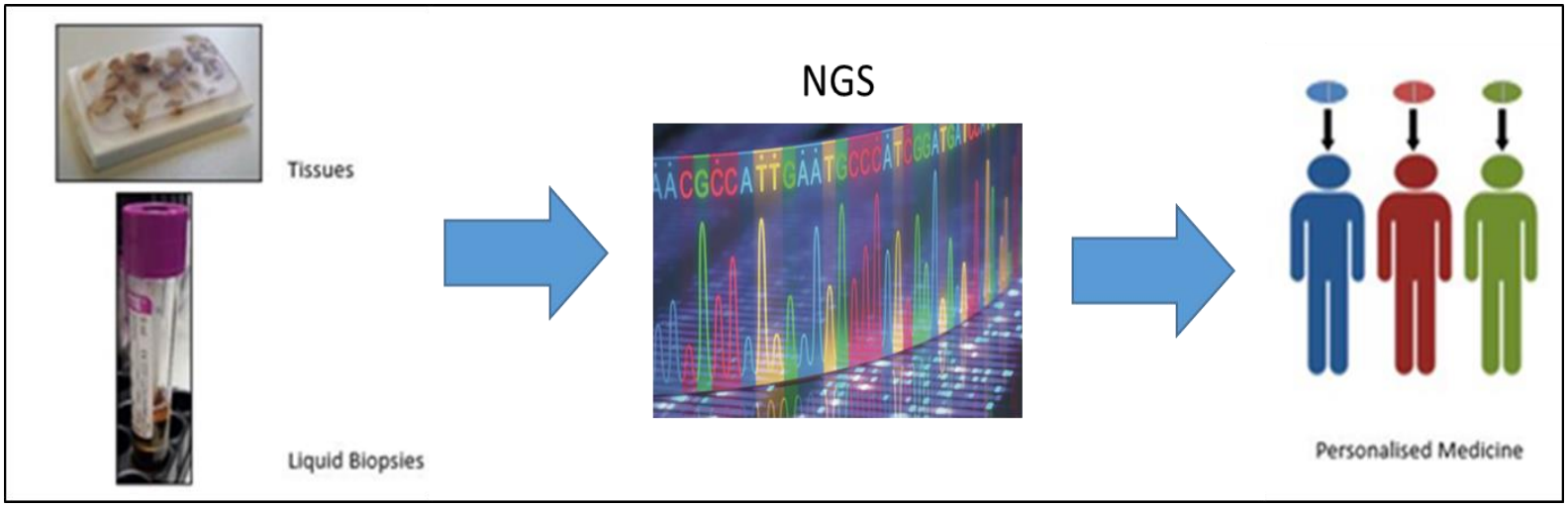
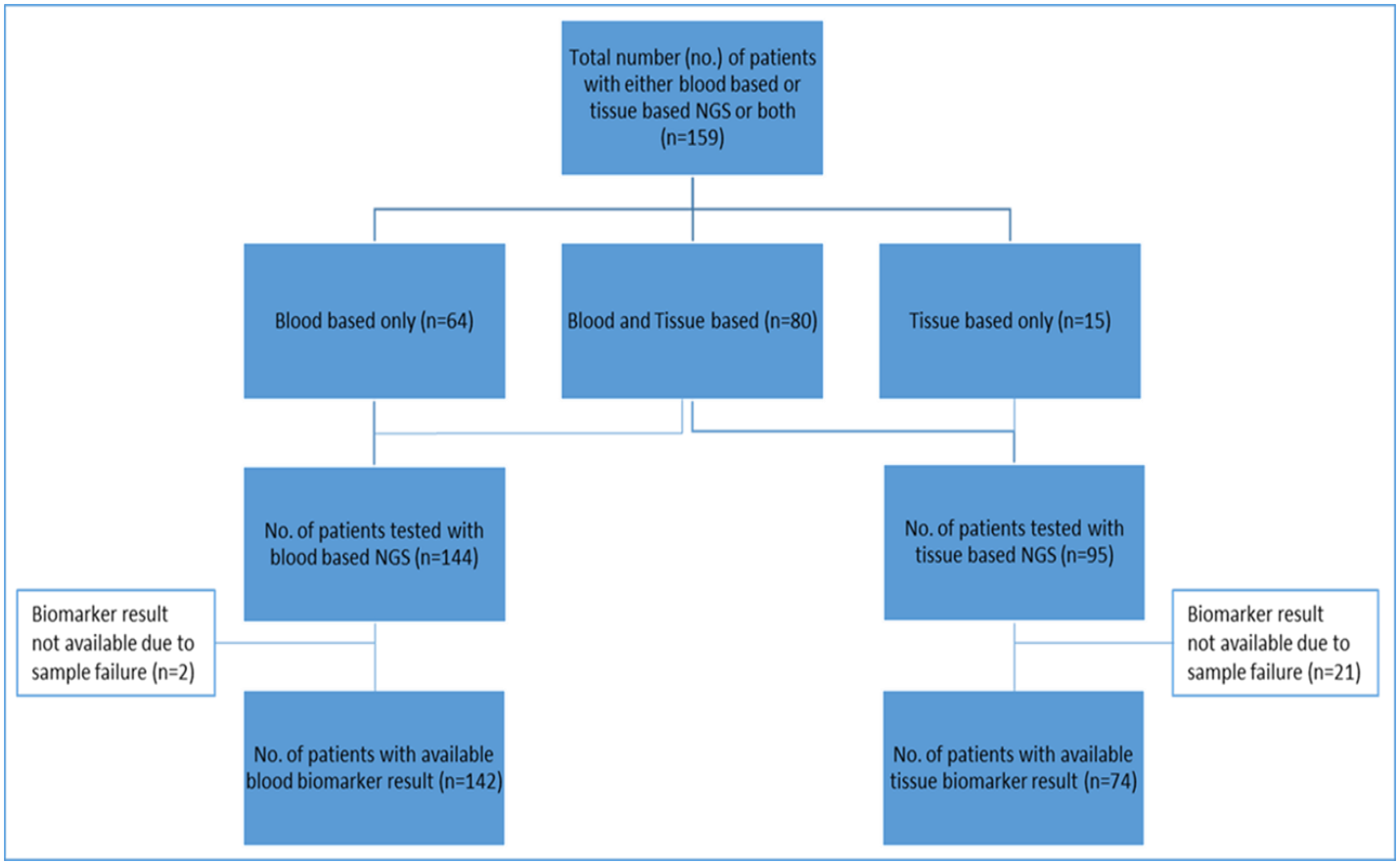
Introduction



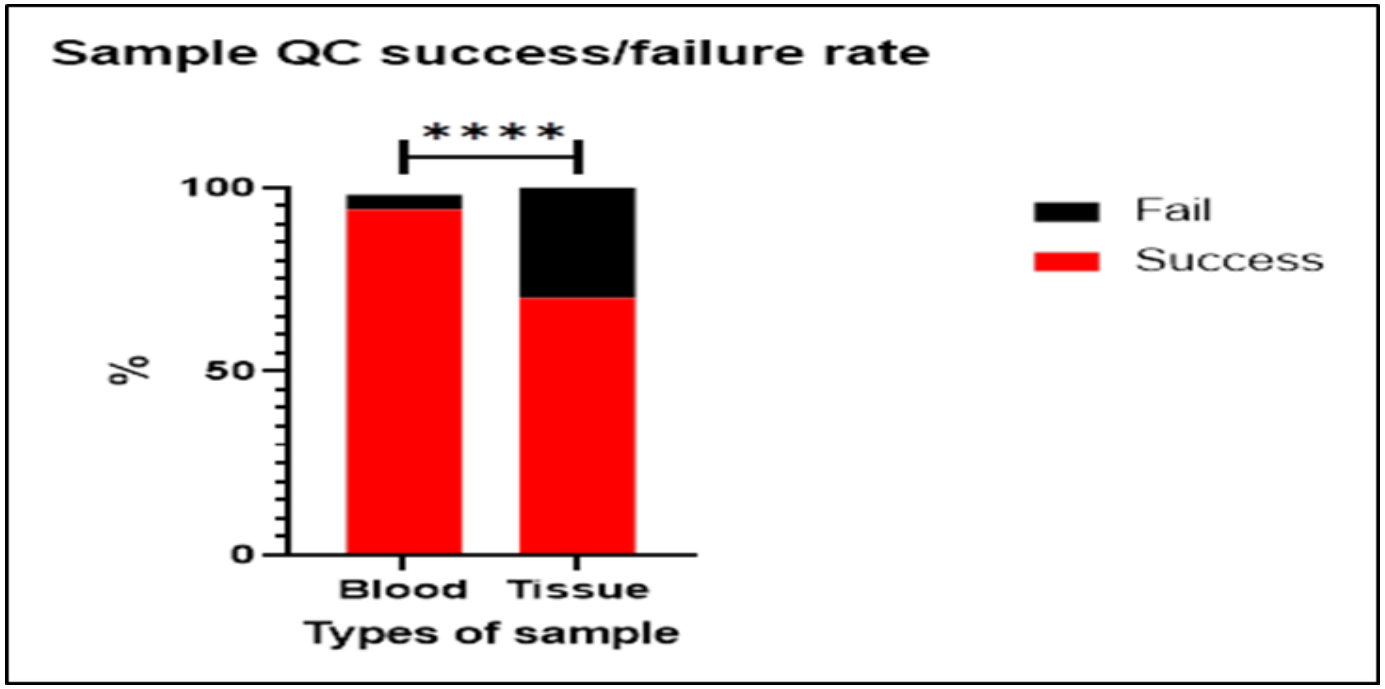
Patients and Methods



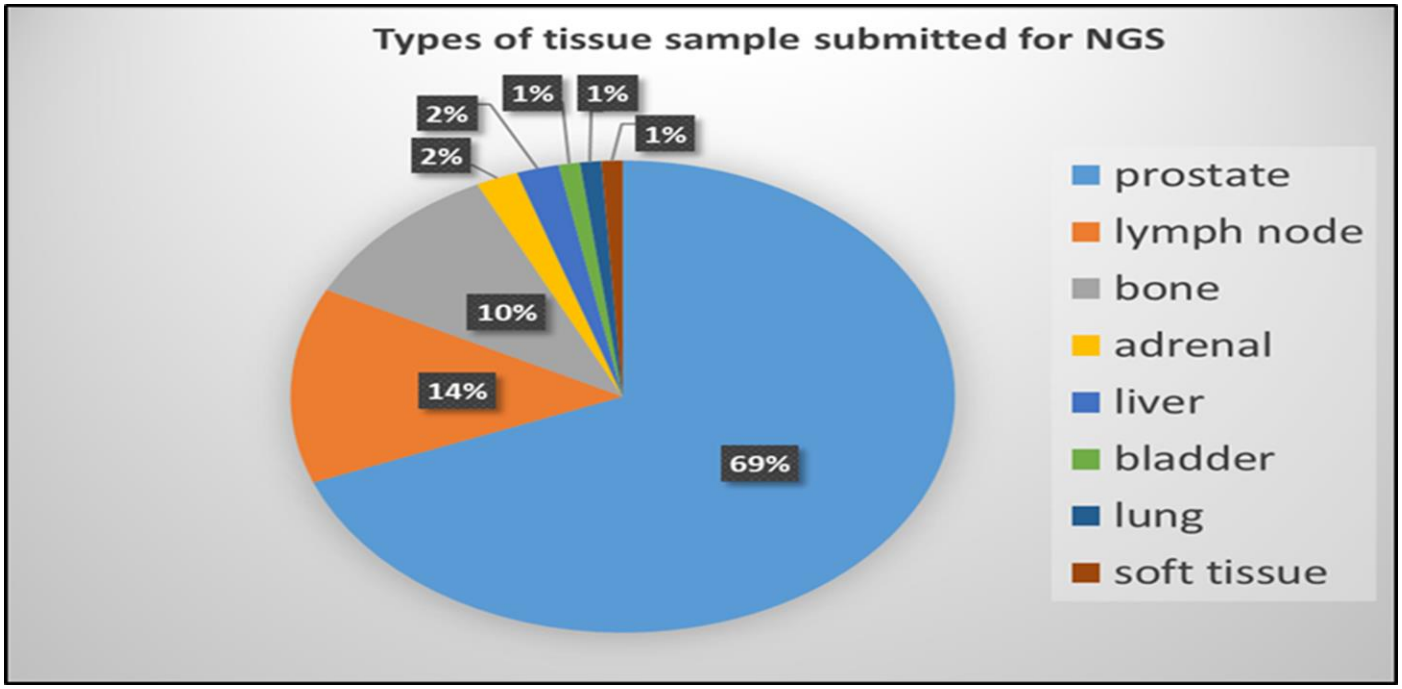
Patients Characteristics

Patients Characteristics	
Age at time of NGS:	
median	75
(range)	(43-92 years)
Race:	
Caucasian, n (%)	157 (99%)
Black, n (%)	2 (1%)
Chemotherapy status at time of NGS:	
Pre-Docetaxel, n (%)	103 (65%)
Post-Docetaxel, n (%)	56 (35%)

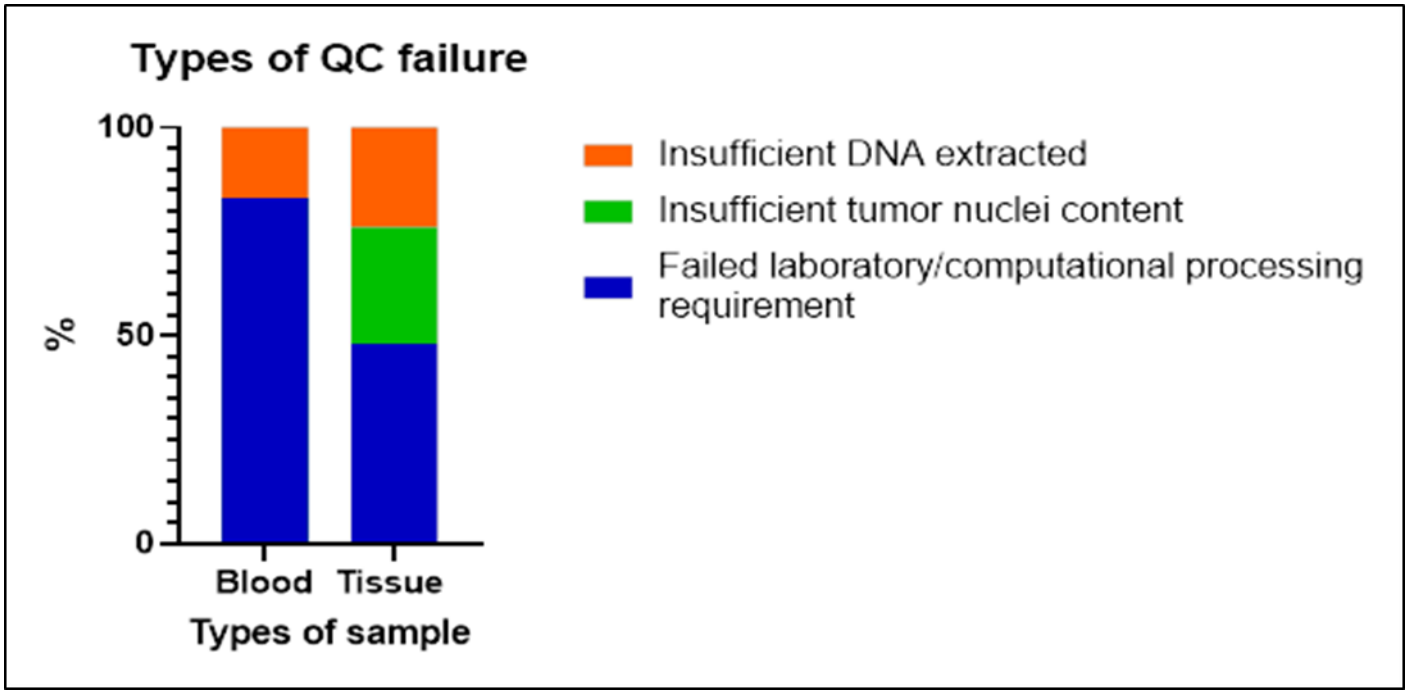
Results


Sample QC success/failure rate
****
100
50
0
%
Blood
Tissue
Types of sample
Fail
Success

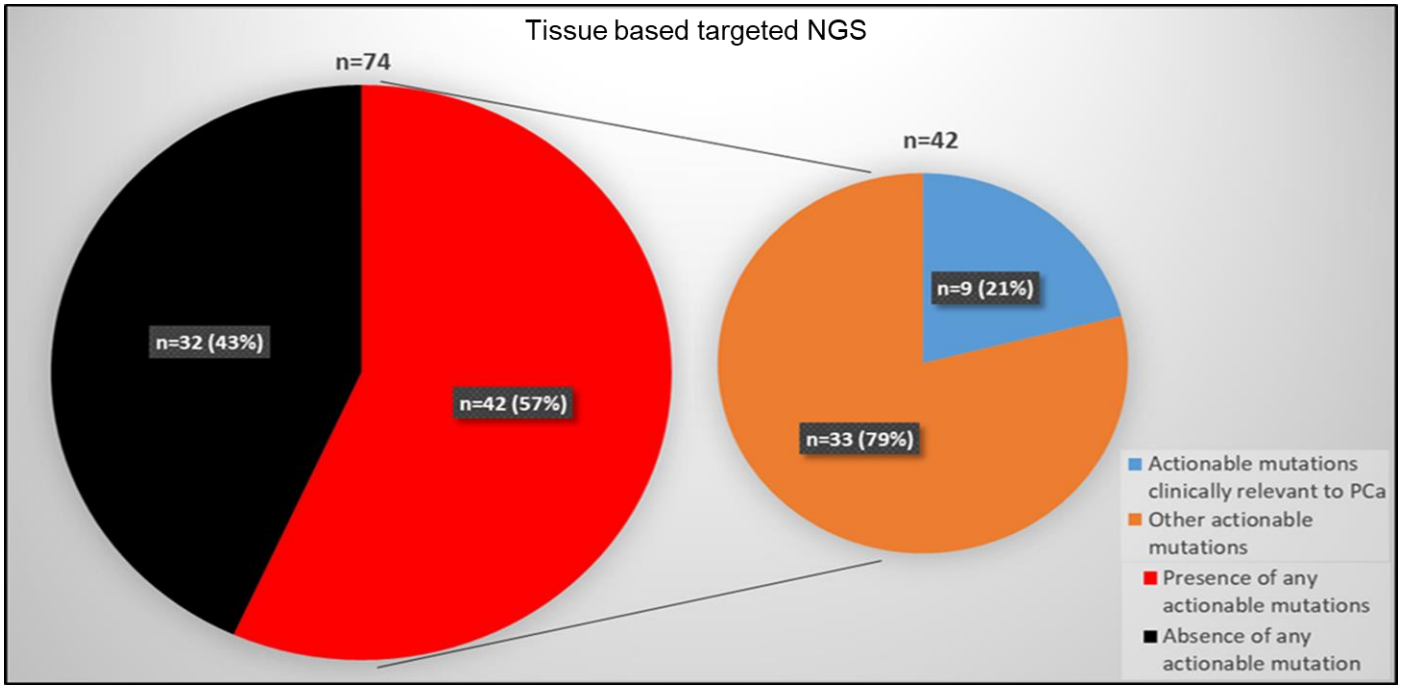
Results


Types of tissue sample submitted for NGS
1%
1%
2%
1%
2%
10%
14%
69%
prostate
lymph node
bone
adrenal
liver
bladder
lung
soft tissue

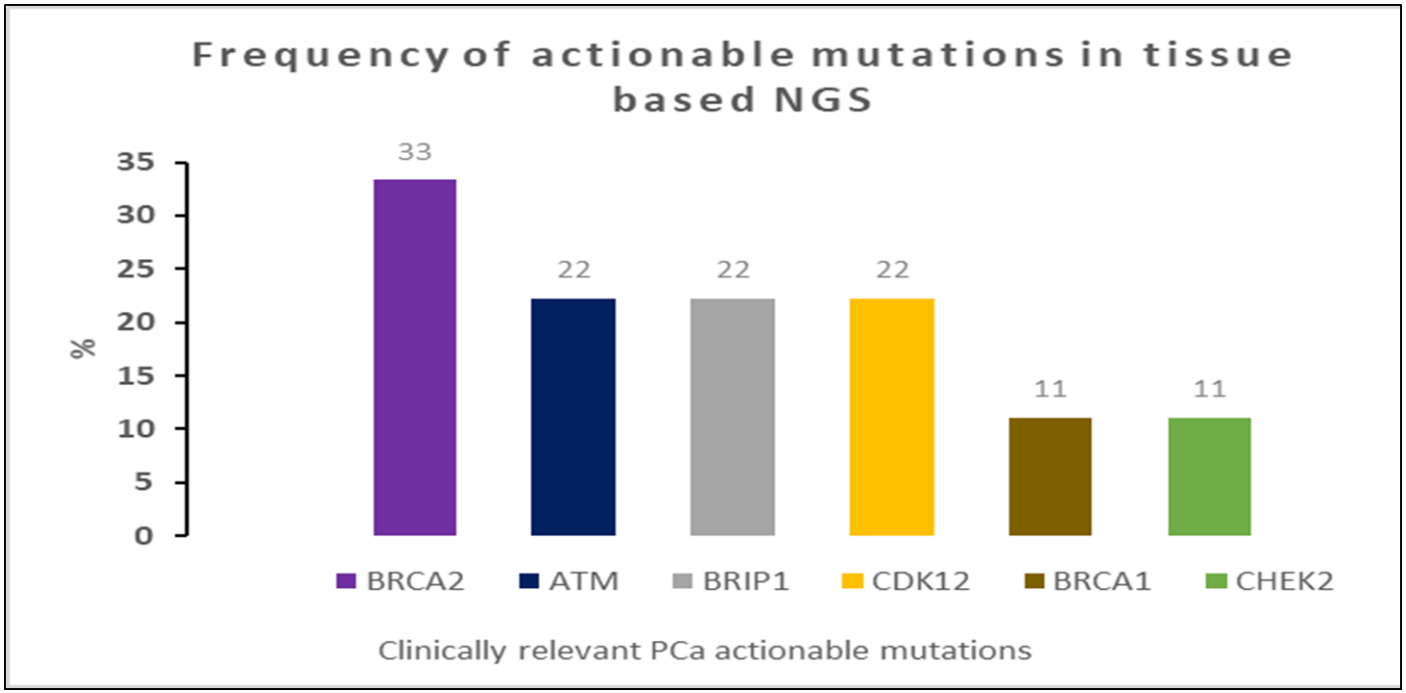
Results


Types of QC failure
100
50
0
%
Blood
Tissue
Types of sample
Insufficient DNA extracted
Insufficient tumor nuclei content
Failed laboratory/computational processing requirement

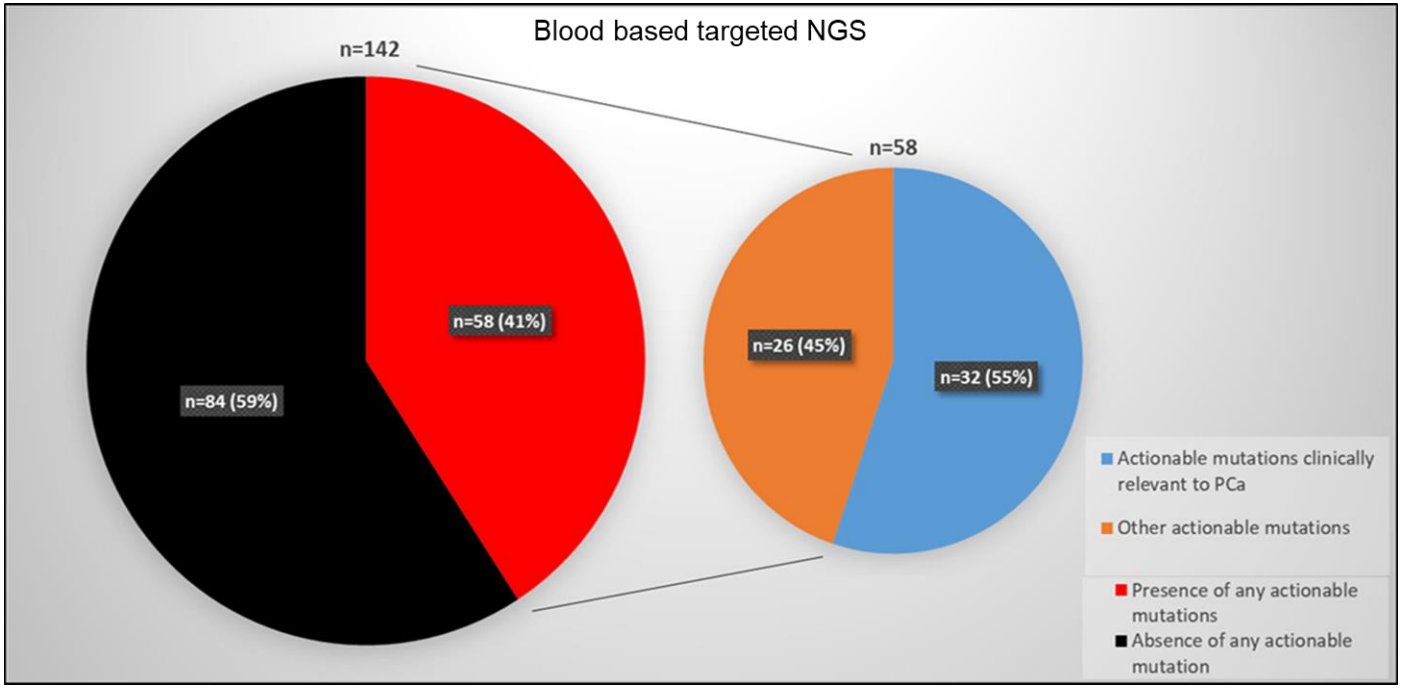
Results


Tissue based targeted NGS
n=74
n=32 (43%)
n=42 (57%)
n=42
n=9 (21%)
n=33 (79%)
Actionable mutations clinically relevant to PCa
Other actionable mutations
Presence of any actionable mutations
Absence of any actionable mutation

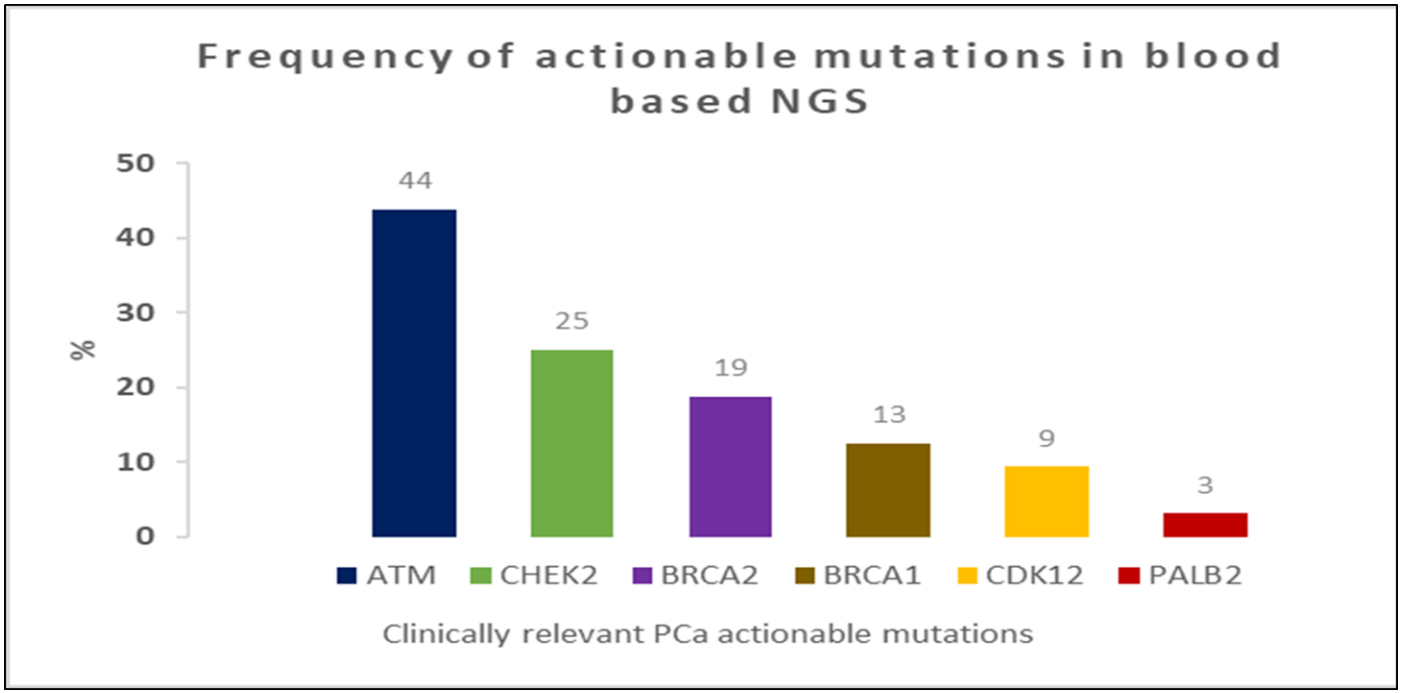
Results


Frequency of actionable mutations in tissue based NGS
35
30
25
20
15
10
5
0
%
33
22
22
22
11
11
BRCA2
ATM
BRIP1
CDK12
BRCA1
CHEK2
Clinically relevant PCa actionable mutations

Results


Blood based targeted NGS
n=142
n=58
n=58 (41%)
n=84 (59%)
n=26 (45%)
n=32 (55%)
Actionable mutations clinically relevant to PCa
Other actionable mutations
Presence of any actionable mutations
Absence of any actionable mutation

Results


Frequency of actionable mutations in blood based NGS
50
40
30
20
10
0
%
44
25
19
13
9
3
ATM
CHEK2
BRCA2
BRCA1
CDK12
PALB2
Clinically relevant PCa actionable mutations

Conclusions

- **The success rate of yielding a biomarker status in blood was significantly higher compared with archived tissue (96% *vs.* 70%, respectively; p<0.0001, OR 10.29 (CI 3.687 to 27.94).**
- **In tissue, an actionable mutation relevant to PCa was detected in 12% of patients.**
- **In blood, an actionable mutation relevant to PCa was detected in 23% of patients.**
- **Blood based NGS maybe a good preliminary clinical screening tool for actionable gene mutations and tissue based NGS can be reserved.**
- **NGS led to identification of actionable mutations relevant to PCa in approximately one fifth of our patients with mCRPC, thus, offering further treatment options. This provides compelling rationale to explore the presence of actionable mutations further in this cohort.**

Thank you

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