

Clinical Knowledge Development Support, Kaiser Permanente Washington

	Mathada	Specifien				D-D
Authors, Alm, Country	Methods	Patient's charact	eristics & Findings			ROB
Authors: (Berlin et al., 2019) Aim: test the utility of the GC to better identify patients with IR-PCa who are sufficiently treated by RT alone.	Design: Retrospective study N=121 Inclusion criteria: Men diagnosed with NCCN-defined IR- PCa treated with curative-intent DE-IGRT without neoadjuvant, concomitant, or adjuvant ADT.	Patient's charact Patients with Inter without ADT (horn N=121; 33 (27.3% unfavorable IR-PC Median follow-up: Age: 72.4 y (68.4- Race:	eristics: mediate risk (IR) PC none Tx)) NCCN-favorable ar Ca 7.5 years (range, 6.5 75.0)	Conclusion: The findings demonstrate the utility of GC in combination with NCCN criteria for selecting IR-PCa to receive ADT and RT. GC reclassified an important number of patients as low risk despite having unfavorable clinicopathologic risk factors. The findings highlight the importance of		
Country:	Exclusion criteria: Index test: Decipher (GC scores) Comparator/reference standard: NCCN risk classification	PSA: Prediagnostic PSA (median [IQR]), ng/mL: 7.8 (5.7-11.2) GS (ISUP): 2 (3 + 4): 75 (62.0%) Clinical T stage: cT1c/T2a 95 (78.5%)			incorporating GC in localized PCa prognostic system, which permits the identification of IR-PCa who can be treated with RT without ADT.	
		Biopsy grade groups.				
	Study period: 2005-2011	NCCN risk groups	: Unfavorable, 87 (7		RoB: Patient selection: high risk as the	
	Primary outcome: biochemical failure (PSA nadir + 2 ng/mL), Secondary outcome: metastasis occurrence	Findings: Overall, GC classi (n=18) as interme >0.6).	fied 73% (n=88) as lo diate (GC 0.45-0.6), a	practice embraced the combination of RT and short-term ADT. Index test: low risk Reference standard: Flow of patients: low risk Concerns about applicability: low Others: retrospective design, small sample size		
	Berlin et al., 2019 designed a retrospective study of 121 patients with Intermediate risk (IR) PCa treated with dose escalated RT without ADT (hormone Tx). The authors reported that GC was a significant predictor of biochemical failure (HR 1.33 ($1.08 - 1.66$), P=0.009) and metastasis (HR	In the NCCN unfa (17.2%), and 12 (high risk, respective In the NCCN favor risk.	vorable subgroup, G 13.8%) cases into lov vely. rable subgroup, GC c			
	2.05 (1.24 – 4.23), P=0.003). GC had a fair/good performance as its AUC for predicting biochemical failure and early onset metastasis were 0.78 and 0.86 respectively. The combination of GC with NCCN criteria had the best	The combination of clinicogenomic ris compared to using	of NCCN and GC clas k group identified a s g GC alone (9.9% (n=	Overall RoB: High		
	performance (AUC 0.85, 0.89 respectively). NCCN criteria		NCCN classification	GC	P values	
	were not predictor of biochemical or metastasis relapse. None of the conventional clinical indices (age, PSA, GS, clinical T category) were predictor of biochemical failure.	Risk of biochemical failure	Not a predictor of biochemical relapse P =0.235	GC is a predictor of biochemical failure HR 1.33 [1.08-1.66], P=0.009		
	The risk of bias of the study is high.	Risk of metastasis	Not a predictor of metastasis relapse P=0.885	GC is a predictor of metastasis 2.05 [1.24-4.23], P=0.003		
		AUC for prediction of biochemical failure	0.56	0.78 0.85 for combination GC+NCCN		
		AUC for prediction for early onset metastatsis AUC, Area Under the Curve.	0.54	0.86 0.89 for combination GC+NCCN		
		None of the conve category) were pro-	entional clinical indice edictor of biochemica	s (age, PSA, GS, clinic I failure.	al T	

Evidence table 1: Clinical validity – Decipher using biopsy specimen

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Authors: (Kim et al., 2019) Aim: to assesses a role for Decipher in predicting adverse pathology (AP). Country: USA	Design: Retrospective study N=266 Inclusion criteria: NCCN-very-low/low or favorable-intermediate risk PCa patients who underwent diagnostic prostate biopsy between 2000 and 2014 and were treated with RP. Patients with complete tumor pathology from biopsy and prostatectomy and Decipher genomic expression profiles generated from diagnostic biopsy specimens were selected for analysis. Exclusion criteria: NCCN very-low-/lowor favorable intermediate-risk PC pts who underwent diagnostic prostate biopsy and were tx'd w/ RP Index test: Decipher scores Comparator/reference standard: Cancer of the Prostate Risk Assessment (CAPRA) scores Study period: 2000 -2014 Primary outcome: association between Decipher and AP.	Patient's characteristics:NCCN-very-low/low (65%) or favorable-intermediate risk (35%) PCa patients who underwent diagnostic prostate biopsy between 2000 and 2014 and were treated with RP. They were candidates for active surveillance (AS). Median Age: 62 y Race: PSA: 5.4 ng/mL (interquartile range [IQR] 4.16ng/mL–7.19 ng/mL). GS 4 and higher: 27 (10.2%) Clinical stage: 85% diagnosed with cT1Biopsy grade groups: 76% were in biopsy grade group 1 NCCN risk groups: 172 (64.7)CAPRA risk groups: 186 (69.9%) and 76 (28.6%) were classified as CAPRA low & intermediate respectively.71 (26.7%) were pT3a and 5 (1.9%) were pT3b.Median Decipher 0.28 (IQR 0.17–0.39) and was significantly higher among men with AP (0.34 IQR 0.25–0.47 vs 0.27 IQR 0.15–0.37, p- value < 0.001	Conclusion: Decipher was a significant predictor of AP when used alone, or with CAPRA, or NCCN. It can be applied to prostate biopsies from NCCN very- low/low and favorable-intermediate risk patients to predict AP found in prostatectomy pathology that would contribute to decision making. Patient selection: possibility of selection bias Index test: Low risk

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		For Decipher t	hresholds of 0.45 a	nd 0.2, NPV was	91% (95% Cl 87	
		94%) and 96% (95% CI 90-99%).				
		Llsing a thresh	old of 0.2 Deciphe	r was a significar	t predictor of AP	
		when adjusting	for CAPRA (n-vali	ue 0.016) Patien	ts with Decipher -	0.2
		were more like	ly to have AP (OR	3 17 95% CI 1 2	2–10 26) than	0.2
		patients with D	ecipher < 0.2	0.11,0070011.2	2 10.20) than	
Authors: (Nguven, Haddad.	Design: Retrospective study	Patient's char	acteristics:			Decipher can predict metastasis and
et al., 2017)		Median Age: 6	4 y (at Tx)			prostate cancer-specific mortality in
. ,	N=235 (n=105 RP, n=130 RT)	Race:				biopsy
Aim: To assess the ability		Median PSA: 7	'.0 ng/ml			specimens of intermediate- and high-
of biopsy Decipher to	Inclusion criteria: Patients treated with either first-line RP	GS:	-			risk patients treated with RT or RP.
predict metastasis and	or first-line RT ± ADT from 1987 to 2014 with available	Clinical stage:	53% had clinical st	age T2a or highe	er	
Prostate	genomic expression profiles. Genetic profiles derived from	Biopsy grade g	roups: 53% of pati	ents had biopsy	Grade Groups	Patient selection: Low
cancer-specific mortality	biopsy specimens. Patients with NCCN intermediate- and	2 and 3				Index test: unclear (lack of information
(PCSM) in primarily	high-risk disease were included. RP cohort had adverse	NCCN risk gro	ups: 54% and 32%	were intermedia	te and high-risk	on whether index test was interpreted
intermediate- to high-risk	pathology at surgery (preoperative PSA > 20 ng/ml, stage	patients based	on NCCN risk grou	up respectively		without knowledge of
patients treated	pT3 or margin positive, or RP Grade Group ≥ 4).	CAPRA risk gr	oups: 48% and 26%	% were intermed	ate and high-risk	comparator/standard reference)
with RP or radiation		patients based	on NCCN risk grou	up respectively.		Reference standard: unclear (lack of
therapy (RT).	Exclusion criteria:	Median CAPR	A score: 4			information on whether
0	Index text. Deviation	Median Decipr	her score: 0.39			comparator/reference standard was
Country: USA	Index test: Decipner					Interpreted without knowledge of index
	Comparator/reference standard: NCCN, Conser of the	Findings				test)
	Comparator/reference standard, NCCN, Cancer of the	24 potionto do	alanad matastasa	a and 11 diad of	orostata concor	Concerns about applicability for notiont
	FIOSIALE RISK ASSESSMENT (CAFRA)	54 patients de	Decinher			selection index test reference
	Follow-up: 6 years	Prediction of	HR 1.37 (1.06–1.78,	U I I I I		standard: Low
		metastasis	p = 0.018)			Other: retrospective study small
	Primary outcomes: Metastasis		Similar HR was			sample size, short follow-up (larger
	Secondary outcome: PCSM		reported when			sample size & longer follow-up would
			CAPRA NCCN			have led to more mortality events).
			(data not shown).			since most patients were NCCN
						intermediate and high-risk, no
			p=0.009 when			conclusion could be drawn regarding
			adjusted for Tx &			low-risk patients.
		Prediction of	clinical data	0.60 (0.50-0.60)	0.66 (95% CI:	
		metastasis 5-yr	0.83) Significant	Not significant	0.53–0.77)	Overall quality is low.
		post-biopsy -			Significant	
		C-index				
		(C-index		CAPRA +	NCCN +	
		assessed		Decipher:	Decipher:	
		performance)		Addition of	0.74 (95% CI: 0.66–0.82)	
		,		Decipher to	Addition of	
				CAPRA	Decipher improved C-index	
				improved C-index	improved O-index	
	•					•

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Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Patient scheme diato and Authors in the monitor of androgen deprivation the register that and high risk prostate cancer work register that concert and had archived tissue or valuable. Industion thereagy (ADT). Design: Retrospective study Patient's characteristics: Patient's characteristics: Pa								
Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Patient's characteristics: Patient's data (NG) Not significant index 11 (NG) Not significant index 11 (NG) Not significant index 11 (NG) Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Patient's characteristics: Patient's data (NG) Not significant index 11 (NG) Not significant index 11 (NG) Conclusion: GC can predict for distant metastasis after controlling for CAPRA (HR of 1.41, 95% CI: 1.12- 1.80) Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Patient's characteristics: Patient bad (NG) Not significant indices properties (NG) Conclusion: GC can predict for distant metastasis after controlling for CAPRA (HR of 1.41, 95% CI: 1.12- 1.80). Authors: (Nguyen, Martin, et al., 2017) No significant and is months of androgen deprivation threngy (ADT). Conclusion: GC can predict for distant metastasis after controlling for CAPRA (HR of 1.41, 95% CI: 1.12- 1.80). Conclusion: GC can predict for distant metastasis after controlling for CAPRA (HR of 1.41, 95% CI: 1.12- 1.80). Country: Conclusion: for cean predict for distant metastasis after controlling for CAPRA (HR of 1.41, 95% CI: 1.12- 1.80). Conclusion: GC can predict for distant metastases. Patient bad (NG) Country: Conclusion: for cean predict for distant metastases. effect (GI). Figure for all (GI). Conclusion: GC can predict for distant metastases. However, GC is not associated with biochemic			Superiority based on decision curve analysis	Decipher superior to CAPRA				
Production of augmentation production of production of producti			Stratification of metastasis risk	Decipher Risk level: metastasis rate Low: 4% Intermediate: 8% High risk: 21 %	Similar findings to those of NCCN.	low, intermediate, and high risk had 0%, 6.4%, and 14% metastasis rate		
Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Sensitivity analysis (including only intermediate to high-risk disease, n=203) showed that decipher maintained its prognostic value for distant metastases after controlling for CAPRA (HR of 1.41, 95% CI: 1.12-1.30). Conclusion: GC can predict for distant metastases after controlling for CAPRA (HR of 1.41, 95% CI: 1.12-1.30). Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Patient's characteristics: Patient's characteristics: Conclusion: GC can predict for distant metastases after controlling for CAPRA (HR of 1.41, 95% CI: 1.12-1.30). Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study N=100 Patient's characteristics: Patient's characteristics: Conclusion: GC can predict for distant metastases after definitive radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years (range, 45-87) Received radiation and ADT: Age: 67 years			Prediction of PCSM	only Decipher significantly stratified PCSM risk (p =0.008)	Not significant	Not significant		
Patients with low-intermediate on the product of the produ				HR1.57 (1.03–2.48) p = 0.037				
Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Sensitivity analysis (including only intermediate to high-risk disease, n=203) showed that decipher maintained its prognostic value for distant metatasis after controlling for CAPRA (HR of 1.41, 95% CI: 1.12–1.80). Conclusion: GC can predict for distant metatasis after controlling for CAPRA (HR of 1.41, 95% CI: 1.12–1.80). Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Patient's characteristics: Patient's characteristics: Patient's characteristics: N=100 Inclusion criteria: patients who received radiation and ADT risk prostate cancer and had archived tissue available. Patient's characteristics: Patient's characteristics: Patient's characteristics: PSA: 7.3 ng ml - 1 (IQR 4.7–14.9 ngml - 1) risk prostate cancer and had archived tissue available. PSA: 7.3 ng ml - 1 (IQR 4.7–14.9 ngml - 1) CNCN & CAPRA and predict with accuracy the 5-year risk of distant metatases. However, GC is not associated with biochemical failure. Country: Exclusion criteria: Inadequate tumor tissue for RNA extraction, patients who did not pass prespecified microarray quality control thresholds. Biopsy grade groups: NCN risk groups: 55% (55) were classified as intermediate risk while deference standard: unclear Flow of patients: Low Concerns about applicability: Low				Patients with low-, intermediate- and high-risk Decipher had a 0%, 0%, and 9.4% incidence of PCSM by 5-yr				
Authors: (Nguyen, Martin, Design: Retrospective study Sensitivity analysis (including only intermediate to high-risk disease, n=203) showed that decipher maintained its prognostic value for distant metastasis after controlling for CAPRA (HR of 1.41, 95% Cl: 1.12–1.80). Conclusion: GC can predict for distant metastasis after controlling for CAPRA (HR of 1.41, 95% Cl: 1.12–1.80). Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Patient's characteristics: Patient's characteristics: Conclusion: GC can predict for distant metastasis after cancer who received radiation and ADT. received radiation and ADT. risk prostate cancer and had archived tissue available. Patient's had NCCN intermediate and high risk prostate cancer who received radiation and ADT. received radiation and ADT. risk prostate cancer and had archived tissue available. Conclusion: GC can predict for distant metastases after definitive radiation and ADT. received radiation and ADT. risk prostate cancer and had archived tissue available. Patient's had NCCN intermediate and high risk prostate cancer who received radiation and ADT. risk prostate cancer and had archived tissue available. Patient's addition and ADT. received radiation and ADT. received radiation and ADT. risk prostate cancer and had archived tissue available. Country: Country: Exclusion criteria: Inadequate tumor tissue for RNA extraction, patients who did not pass prespecified microarray quality control thresholds. Index test: Decipher GC scores Biopsy grade groups: NCCN risk groups: 55% (55) were classified as intermediate risk while arcer received radiation received radiation received radiation and ADT. risk groups: Comparator/reference standard: Lon				post-treatment				
Authors: (Nguyen, Martin, et al., 2017) Design: Retrospective study Patient's characteristics: Patient's characteristics: Conclusion: GC can predict for distant metastases after definitive radiation and ADT. Age: 67 years (range, 45–87) Aim: To assess the ability of GC to predict metastasis after radiation and 6 months of androgen deprivation therapy (ADT). Inclusion criteria: Inadequate tumor tissue for RNA extraction, patients who did not pass prespecified microarray quality control thresholds. Patient's characteristics: Patient's characteristics: Conclusion: GC can predict for distant metastases after definitive radiation and ADT. Age: 67 years (range, 45–87) Country: Inclusion criteria: Inadequate tumor tissue for RNA extraction, patients who did not pass prespecified microarray quality control thresholds. Patient's characteristics: Conclusion: GC can predict for distant metastases after definitive radiation and ADT. Age: 67 years (range, 45–87) Country: Country: Patient's characteristics: Patient's characteristics: Patient's characteristics: Patient's characteristics: Conclusion: GC can predict for distant metastases after definitive radiation and ADT. Age: 67 years (range, 45–87) Country: Indust accuracy for Jose and part of the pass prespecified microarray quality control thresholds. Patient's characteristics: Conclusion: GC can predict for distant metastases after definitive radiation and ADT. Age: 67 years (range, 45–87) Country: Exclusion criteria: Inadequate tumor tissue for			Sensitivity ana n=203) showe metastasis afte 1.80).	lysis (including only d that decipher mai er controlling for CA	/ / intermediate to ntained its progn PRA (HR of 1.4*	high-risk disease ostic value for di: 1, 95% CI: 1.12–] e, stant	
Country:Exclusion criteria: Inadequate tumor tissue for RNA extraction, patients who did not pass prespecified microarray quality control thresholds. Index test: Decipher GC scoresBiopsy grade groups: NCCN risk groups: 55% (55) were classified as intermediate risk while 45% (45) were high-risk CAPRA risk groups:Patient selection: Index test: unclear Reference standard: unclear Flow of patients: Low Concerns about applicability: Low	Authors: (Nguyen, Martin, et al., 2017) Aim: To assess the ability of GC to predict metastasis after radiation and 6 months of androgen deprivation therapy (ADT).	Design: Retrospective study N=100 Inclusion criteria: patients who received radiation and ADT from 2001 – 2013 and who had NCCN intermediate or high- risk prostate cancer and had archived tissue available.	Patient's chai Patients had N received radia Age: 67 years Race: PSA: 7.3 ng m GS:36%, 23% Clinical stage:	racteristics: ICCN intermediate tion and ADT. (range, 45–87) II- 1 (IQR 4.7–-14.9 , and 19% had GS 64% (64) ≼T2a	and high risk pro 9 ngml– 1) 7 (4+3), 7 (3+4),	state cancer who and ≥9 respectiv	o rely.	Conclusion: GC can predict for distant metastases after definitive radiation and ADT in men with intermediate and high risk prostate cancer. GC outperformed NCCN & CAPRA and predict with accuracy the 5-year risk of distant metastases. However, GC is not associated with biochemical failure.
microarray quality control thresholds.NCCN risk groups: 55% (55) were classified as intermediate risk while 45% (45) were high-riskPatient selection: Index test: unclear Reference standard: unclear Flow of patients: Low Concerns about applicability: Low	Country:	Exclusion criteria: Inadequate tumor tissue for RNA extraction, patients who did not pass prespecified	Biopsy grade g	groups:				
CAPRA risk groups: Reference standard: unclear Flow of patients: Low Comparator/reference standard: CAPRA, NCCN		Index test: Decipher GC scores	NCCN risk gro 45% (45) were	oups: 55% (55) were high-risk	e classified as int	ermediate risk w	hile	Patient selection: Index test: unclear
		Comparator/reference standard: CAPRA, NCCN	CAPRA risk gi	roups:				Reference standard: unclear Flow of patients: Low Concerns about applicability: Low

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	Follow-up: 5.1 years	18 patients de	veloped metastasis	during study follow	-up; 28 patients	Other: small sample size, short follow-
	(interquartile range: 3.4-6.3)	had biochemical failure; 12 developed castrate resistant disease.				up, retrospective design; Conflict of
	Primary outcome: distant metastasis following radiation tx	Findings.				interest was reported.
	Secondary outcome: biochemical failure (nadir plus 2	Median GC so	core was 0.39 (IQR:	0.22–0.61).		Overall, the quality of the study is low.
	definition) and castrate resistance (defined as any rise in	The median C	APRA score was 5	(IQR: 4–6)		
	PSA despite being on salvage ADT for biochemical failure).		Decipher	CAPPA	NCCN	
		Prediction of	HR 1.40 (1.10–1.84);	HR 1.15 p=0.271	HR 2.00 (0.78-	
		metastasis	P = 0.006	Not significant	5.35); P = 0.147 Not	
			Only Decipher was a sigr	I nificant predictor of metasi	asis	
			Decipher remained a sign including CAPRA or NCC	nificant predictor of metas CN (HR not shown).	tasis in models	
		Biochemical	None of tests are predictor	ors of biochemical failure.	CAPRA in univariate	
		Tallure	1.49; $P = 0.042$;	Diochemical failure HR: 1	.23; 95% CI: 1.01-	
		castrate resistant disease	After adjusting for NCCN HR for GC 1.43 (1.01-2.0	09); P =0.044		
		uisease	After controlling for CAPF HR for GC 1.48 (1.00–2.4	RA 45); P =0.049		
		Discrimination	0.76 (95% CI: 0.57– 0.89)	0.45 (95% CI: 0.27- 0.64)	0.63 for NCCN (95% CI: 0.40-	
		- Survival C-	This is similiared	Netsingficent	0.78)	
		years post	C-index is good	Not significant	Not significant	
		radiation. [C- index is AUC]				
		Survival c- index of GC	0.78 (95% CI: 0.60–0.87)			
		for	0.00 0.01)			
		metastasis at				
		10 years following RT				
		Decision	Showed that the net bene	efit of using GC for treatm	ent	
		analysis	either the CAPRA risk mo	odel or naively choosing to	either treat all	
			patients or to treat none.			
Authors: (Klein et al., 2016):T	his study was excluded because less than 100 patients had De	cipher test.				
(Press et al., 2022) was excit	ided because distant metastasis, diochemical failure, or mortalit	y was not evalu	ated			
Authors:	Design:	Patient's cha	racteristics:			Patient selection:
A im.	Ν	Age:				Index test:
Allin.	IN=	PSA:				Flow of patients:
Country:	Inclusion criteria:	GS:				Concerns about applicability:
-		Clinical stage:				Others:
	Exclusion criteria:	Riopov grada	aroupe:			
		biopsy grade	gioups.			

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Index test: Comparator/reference standard: Follow-up: Primary outcomes:	NCCN risk groups: CAPRA risk groups: Findings:	
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Evidence table 2: Decipher test using RP specimens

Authors, Aim, Country	Methods	Patient's characteristics & Findings	RoB
		Clinical Validity	
Authors: (Herlemann et al., 2020) Aim: to validate Decipher to predict adverse pathology (AP) in patients who underwent radical prostatectomy (RP) with NCCN favorable- intermediate risk (F-IR) prostate cancer (PCa), and to improve selection of F- IR candidates for active surveillance (AS). Country: USA	Design: retrospective N=647 n=220 for F-IR patients Inclusion criteria: Patients diagnosed with NCCN very low/low risk (VL/LR) or favorable Intermediate Risk (F-IR) prostate cancer who underwent RP with complete postoperative clinicopathological information and Decipher genomic risk scores. Exclusion criteria: Index test: Decipher Comparator/reference standard: CAPRA Study period: Primary outcome : Prognostic ability of Decipher to predict Adverse Pathology (AP) (defined as grade group 3–5, pT3b or higher, or lymph node invasion) at RP within the NCCN F-IR group while considering CAPRA.	 Patient's characteristics: Patient's characteristics: Patients diagnosed with NCCN very low/low risk (VL/LR) or favorable Intermediate Risk (F-IR) prostate cancer who underwent RP with complete postoperative clinicopathological information and Decipher genomic risk scores. The following characteristics were reported for NCCN F-IR cohort: Median Age: 61 y (56 - 66) Race: majority were White 63% PSA: 5.9 ng/mL (IQR 4.6–9.3) GS: Clinical stage: majority (67%) had cT1 Biopsy grade groups: majority (62%) had GG2 NCCN risk groups: 100% were F-IR CAPRA risk groups: CAPRA classified 53% as low risk (0-2) and 47% as intermediate risk (3-5). Majority of the F-IR patients were CAPRA 2 or 3 Decipher classified 79% as low risk, 13% as intermediate risk, and 8% as high-risk median time from biopsy to RP was 3 months 	Conclusion: The study demonstrated that Decipher is an independent predictor of AP among patients with NCCN F-IR with higher likelihood of AP at the time of RP. CAPRA is not a significant predictor of AP in this group. Among these patients, only Decipher high risk had higher odd of predicting AP compared to low risk. NCCN F-IR had increased odds (1.7 OR) of adverse pathology as compared to NCCN VL/LR tumors. A small subset (3%) of F-IR patients with Decipher high-risk results had increased risk of AP compared to VL/LR tumors.
		After RP, 74% had pathological stage pT2 and 18% had positive margins Overall 15% had AP at RP, 15% GG 3–5 only and 33% AP-II. BCR at 3 years was 4% with a median follow-up of 2.8 years Findings: for NCCN F-IR cohort Prediction of OR=1.34 (1.1–1.6) P= 0.002. This remained significant after controlling for CAPRA. OR 1.6 (1.0–2.7) not	RoB: Patient selection: Low Index test: unclear (lack of information to whether the results of reference standard was known to those who interpreted the Decipher test and vice versa) Reference standard: unclear Flow of patients: Low risk Concerns about applicability: Other: retrospective design, COI. Overall, RoB is high.

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		Prediction of AP	Compared to low risk, Decipher high-risk (3% only), but not intermediate-risk, predicted AP with OR of 4.6 (95% Cl 1.6-12.9).			
		AUC		0.60 (95% Cl 0.51– 0.70) Adding Decipher increased the AUC to 0.65 (0.57–0.71)		
		Analysis of NCCN	F-IR (n=220) vs NCCN VL NCCN F-IR cohort	/Low risk (n=427)]	
		Prediction of AP	OR 1.7, 95% CI 1.0- NCCN F-IR had incre Odds of AP as comp tumors.	2.8, p < 0.05 eased ared to NCCN VL/LR		
		AP rate at RP Odd of AP	NCCN F-IR with a D had a significantly his odds for AP of 6.8 (p VL/LR tumors.	9% ecipher high-risk score gher < 0.001) compared to		
]	
						2
Authors: (Tosoian et al., 2020) Aim: To assess the	Design: Retrospective study N= 405 patients	Patient's characte Patients with high-r Age:	r istics: isk prostate cancer who un	derwent RP or RT with A	DT.	Decipher is an independent predictor of metastasis in patients with high-risk prostate cancer who underwent RP or RT.
performance of Decipher within NCCN high-risk disease.	Inclusion criteria: Patients with high-risk prostate cancer who underwent primary treatment with radical prostatectomy (RP) or radiation therapy (RT) with androgen-deprivation therapy	Race: PSA: GS: Clinical stage:				Clinico-pathologic variables have a poor discrimination to risk stratify metastatic disease. The addition of Decipher to these
Country:	(ADT). Exclusion criteria:	Biopsy grade group	05:			variables increase their performance.

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	Index test: Decipher test Comparator/reference standard: clinico-pathologic variables, CAPRA, Follow-up: 82 months Outcomes: Metastasis, performance AUC	ACCN fisk groups: CAPRA risk groups: Findings: 26% (104/405) developed metastasis Association with metastasis: GC score was significantly associated with metastasis (HR: 1.33 (1.19-1.48, p < 0.001))	Study was based on Abstract. All the patients' characteristics were not known but patients had high- risk prostate cancer. The RoB was based on study design only. Main limitation: retrospective study Overall RoB: High
(Howard et al., 2020) Aim: To evaluate GC and compare its performance to CAPRA-S in African Americans (AA) and non- AA.	Design: N=548 Inclusion criteria: Patients with high-risk disease with either pT3a, positive margins, seminal vesicle invasion, or received post-RP radiotherapy. Follow-up (median): 9 years	Patients' characteristics: Patients with high-risk disease and was selected to have either pT3a, positive margins, seminal vesicle invasion, or received post-RP radiotherapy. Findings: AA number: 55% (301/548) Metastasis: 37/548 Mortality: 20/548 Association btw Decipher & metastasis: GC was an independent predictor of metastasis with p<0.001 (in AA as well as non-AA)	Decipher is a significant predictor of metastasis and mortality among African Americans & non- AA with high-risk who underwent RP. Rob: This is an abstract. Determination of Rob was challenging in the absence of the methodology.
Authors:(Feng et al., 2021)	Design: Validation study of GC in RCT RP specimens were derived from patients on placebo-controlled RCT of salvage radiotherapy (sRT) +/- 2 years of bicalutamide. These	Patient's characteristics: RP specimens were derived from patients on placebo-controlled RCT of salvage radiotherapy (sRT) +/- 2 years of bicalutamide. In the RCT, patients were required to have recurrent disease after RP with a PSA of 0.2 to 4.0 ng/mL, pathologic T3 disease	Conclusion: GC is a significant predictor of distant metastasis, prostate cancer mortality, and overall survival independent of

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Aim: validate the GC within the context of a randomized phase 3 trial. Country:	specimens were centrally reviewed and underwent RNA extraction. GC scores were generated. N=352/522 passed QC Inclusion criteria in the RCT where specimens were obtained: patients were required to have recurrent disease after RP with a PSA of 0.2 to 4.0 ng/mL, pathologic T3 disease (tumor spread beyond the prostate) or T2 disease (tumor centriced with the prostate) or T2 disease (tumor	(tumor spread beyond the pro with a positive surgical margin Age: 64.5 y Race: PSA: most had PSA <0.7 or F GS: majority had GS 7 or GS T stage: most had T3 148 of 352 GC low (42%), 13 risk (20%) Findings:	standard clinicopathologic variables (age, race/ethnicity, Gleason score, T stage, margin status, entry prostate-specific antigen, and treatment arm). Limitations: RP tissue were older than 20 years resulting in 30% quality control failure rate. Sample size is limited.		
	surgical margin and no evidence of nodal or		GC	1	
	metastatic disease	Ability to predict distant	HP 1 19 [95% CI 1 06-1 35] p=0.003		
		metastasis (DM)	The first is the f		
	Exclusion criteria:	Prostate cancer specific	HR 1 37 [95%CL 1 18-1 61] p<0.001)		
		mortality (PCSM)			
	Index test: GC	Overall survival (OS)	HR 1.16 [95%CI 1.06-1.28], p=0.002		
			_ · · · · · · • [• • / • • · · • • · · • •], • • • • • •	1	
	Comparator/reference standard: standard	There was not a statistically s	significant interaction between GC score ar	id hormone	
	clinicopathologic variables	treatment effect for DM, morta	ality, and OS. However, the estimated abs	olute benefits in	
		DM, PCSM, and OS observed	d with hormone therapy were different by C	C risk groups;	
	Follow-up: 13 y	the 12-year benefit from the a	addition of hormone therapy was approxim	ately 3-fold	
	Primary outcome: Prognostic ability of the GC to independently predict the cumulative incidence of distant metastasis (DM).	greater in intermediate and hi intermediate and high: DM, 5.	igh GC scores than in low GC scores (all p .0% vs 15.7%; PCSM, 4.5% vs 11.8%; OS	atients, low vs , 2.4% vs 8.9%).	
	Secondary outcome: prostate cancer-specific	The GC score was prognostic	c also across other end points, including se	cond	
	mortality (PCSM) and overall survival (OS).	biochemical recurrence (treat	ment arm: HR, 1.24; 95% CI, 1.10-1.39; P	< .001), distant	
		progression-free survival (trea	atment arm: HR, 1.19; 95% CI, 1.08-1.31;	⊃ < .001), and	
		metastasis-free survival (treat	tment arm: HR, 1.17; 95% CI, 1.04-1.33; F	= .008).	
Authors: (Karnes et al.,	Design: Retrospective study	Patient's characteristics:			Conclusion: Decipher GC may be
2018)		Patients with adverse patholo	ogic features: pT3, pN1, positive margins, c	r Gleason score	an independent predictor of
	N=561 (n=112 with PCSM10)	>7 who underwent RP			prostate cancer specific mortality
Aim: Validate the 22 gene		Age:			within 10 years of radical
Decipher genomic	Inclusion criteria: Patients with adverse pathologic	Race:			prostatectomy in men with
classifier (GC) to predict	features: pT3, pN1, positive margins, or Gleason	PSA:			adverse pathology.
PCSM in men with	score >7 who underwent RP	GS:			
footures ofter PD	Evolution critoria: patients with pacediument	Cimical stage:			
icalules aller KP.	therapy patients alive with less than 10 yr of	Riopsy grade groups:			
Country	follow-up	Median GC score: 0.30 (0.22	- 0.59)		
Country.		Median CAPRA_S: $1/2$ 6)	- 0.33)		
	Index test: Decipher	Patients with PCSM10 had si	milar characteristics to patients without exe	ent for Gleason	
		RP stage CAPRA-s GC and	adjuvant ADT or RT		
	1	11 5tage, 071 177-5, 00, and			

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	Comparator/reference standard: CAPRA, Follow-up: 13 y (patients without PCSM10). Primary outcomes: Association of GC and PCSM within 10 years of RP (PCSM10) (controlled for CAPRA); GC performance evaluated by AUC	Findings: Association of GC & PCSM GC was associated with PCSM within 10 years of RP adjusting for CAPRA; OR 1.34 (1.20, 1.50), P<0.001 Compared to low & intermediate GC score, high GC score (>0.6) was associated with PCSM 10 [OR 3.91 (2.43–6.29)] after adjusting for CAPRA-S with AUC of 0.77; Performance by AUC AUC of GC adjusted for CAPRA: 0.76 (95% CI 0.71, 0.82). This represented 0.03 increase of AUC from adding GC. AUC of GC high score adjusted for CAPRA: 0.77 (0.77, 0.81) suggesting an increase of 0.04 from adding GC. IN Patients with high risk (PSA > 20 or prostatectomy Gleason score > 8 or prostatectomy stage pT3b/N1 [n = 323, 98 PCSM10] GC is still associated with PCSM10 after adjusting for CAPRA-S [OR 1.33 (1.17, 1.50) P<0.001 with AUC of 0.69 (0.62, 0.75)]. Compared to low & intermediate GC score, high GC score + CAPRA-s was associated with PCSM 10 [3.96 (2.35, 6.69), P<0.001 with AUC of 0.69 (0.63, 0.76)] Patients with BCR within 2 yr: high GC score was associated with PCSM 10 [OR 3.06 (1.62, 5.76) P<0.001, with AUC 0.72 (0.65, 0.79)] adjusted for CAPRA-s. Patients with metastasis High GC score + CAPRA-s was associated with PCSM 10 [OR 1.95 (1.12, 3.39), P<0.001 with PCSM 10 [OR 1.95 (1.12, 3.39), P<0	case – control was not avoided. In fact, there was a combination of case-control & cohort study. The cohorts combine case- control and cohort study; adjuvant tx was administered to high-risk patients causing confounding. Patients were from academic centers compromising extrapolation to the general population. Overall, RoB is high.
(Dalela et al., 2017)	Design: Retrospective study	Patient's characteristics: Patients with prostate cancer treated with radical prostatectomy. Patients had \geq pT3a disease positive surgical matrices and/or pathologic lumph rade investor	Conclusion: The addition of Decipher score to a risk
internally validate a risk-stratification tool incorporating the Decipher	Inclusion criteria: Patients in the randomly selected subcohort of casecohort	Median Age: 61 Race: PSA:	incremental prognostic value in identifying patients with adverse pathologic features at higher risk
score, along with routinely available clinicopathologic features, to identify patients who would benefit	Studies Achieved PSA nadir after surgery Complete clinical data Received either adjuvant or salvage radiation or	GS: \geq 4+3 in 48.4% of patients, and the majority (72.3%) harbored extraprostatic disease. Pathologic stage: most were pT3a, pT3b	or clinical recurrence.
the most from aRT.	no	Clinical stage:	RoB: High

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	radiation treatment before clinical evidence of metastasis Patients with pT3 disease or PSMs (Prostate surgical margins) Exclusion criteria: Patients who received any neo- adjuvant prostate cancer treatment before surgery Index test: Decipher test Comparator: Median Follow-up in censored patients: 8.3 years Primary outcome: time to clinical recurrence (CR; as documented from prostatic fossa biopsy specimen, and/or radiographically on computed tomography scan, bone scan, and/or other imaging modalities).	 Median GC score: 0.41 (range 0.00 to 0.96) GC risk category: most were low & intermediate risk Patients who received aRT harbored PSMs more frequently than those who did not receive aRT (initial observation group) Findings: 21.9% (112/512) of patients received aRT 62/512 patients (12.1%) had documented CR. Decipher high risk is a significant predictor of clinical recurrence (CR): HR 2.93 (1.58 to 5.55), p=0.001 Nomogram developed with decipher and ART status stratification: HR, 1.25 [95% CI, 1.09 to 1.44]; P=0.002 Discrimination accuracy of the novel nomogram for predicting 5-year CR risk was: 85% vs 79% for the clinicopathologic model (CI of the two models overlapped) 	This is due to retrospective design, COI.
(Ross, Den, et al., 2016) Aim: To evaluate the combination of clinico-pathological and genomic risk in the context of postoperative therapeutic choices.	Design: Retrospective study N=422 Inclusion criteria: Patients with PCa treated with radical prostatectomy (RP) who had adverse pathological features, and no lymph node metastasis. All patients reached an undetectable PSA following surgery. Patients received either no post-operative treatment before development of metastasis or were treated with either ART or SRT. Exclusion criteria: Patients who received SRT with a pre-radiation therapy (RT) PSA 410 ng ml – 1 Index test: Decipher Comparator: CAPRA-s Median F/u: 8 years in those who did not develop metastasis	 Patients' characteristics Patients with PCa treated with radical prostatectomy (RP) who had adverse pathological features, and no lymph node metastasis. 37/422 developed metastasis Demographics & clinical characteristics were similar btw treatment groups except for Extra prostatic extension and positive surgical margins rates. The no RT group had the lowest positive surgical margin rate and highest rate of extra prostatic extension. CAPRA classified 6, 58 and 36% of men low (0–2), intermediate (3–5) and high risk (6- 12). The cumulative incidence of metastasis at 10 years post RP was 11.3, 3.3 and 21.4%, respectively. Decipher score classified 57, 27 and 16% as low (<0.45), intermediate (0.45–0.60) and high risk (40.60). Cumulative incidence of metastasis at 10 years post RP was 6.8, 10.3 and 21.9%. CAPRA-S and Decipher scores were independent predictors of metastasis. Multivariable analysis of treatment groups adjusted by Decipher and CAPRA-S Decipher HR 1.28 (1.08–1.52), P=0.004 CAPRA-S HR 1.39 (1.18–1.62), P=0.001 ART Reference 1 MRD-SRT HR 2.30 (0.51–10.33), P= 0.28 	Conclusion: Decipher is an independent predictor of 10-year risk of metastasis. It may be used to improve tx decision in post prostatectomy in patients with adverse pathological features. Rob: Retrospective design; ascertainment bias may have accounted for differences between groups; sample size & few observed events may have limited study power; there is COI.

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-											
	Primary outcome: Incidence of clinical metastasis SRT HR 4.31 (1.20–15.47) 0.02										
	(regional or distant) documented radiographically	NORI HRS									
	on computed tomography or bone scan.	10 years shale of most									
		10-year risk of met	astasis: increase								
		Decipher Score	AKI 29((0.59()		5KI 109((2.169()	109((4 169()					
		LOW (<0.45)	2% (0-5%) 4% (0-8%)	4% (0-9%) 6% (0-13%)	10% (2-10%)	10% (4-10%)					
		(0.45-0.60)	478 (0-078)	078 (0-1378)	1470 (2-2470)	1378 (3-2378)					
		High (>0.60)	11% (0-23%)	19% (0-35%)	38% (13-56%)	40% (16-57%)					
		Panel A - CAPRA-S Score	ART	MRD-SRT	SRT	No RT					
		Low and Intermediate (0-5)	1% (0-3%)	3% (0-7%)	6% (1-10%)	6% (2-10%)					
		High (6-12)	8% (0-17%)	20% (0-36%)	32% (13-47%)	34% (18-47%)					
(Ross, Johnson, et al.,	Design: retrospective case-cohort design	Patients' characte	eristics:				Conclusion:				
2016)		Men who underwent RP, at intermediate or high risk and received no additional									
	N=356; n(for Decipher)=260	treatment until the	time of metastas	is.			predictor of metastasis in a				
Aim: To evaluate the		Patients had CAPF	RA-S score ≥3, p	athologic GS≥7, ∣	oost-RP PSA nadi	r <0.2 ng/ml.	population that received no				
Decipher genomic	Inclusion criteria: Cancer of the Prostate Risk		adjuvant or salvage therapy after								
classifier in a natural	sifier in a natural Assessment postsurgical (CAPRA-S) score ≥3; (2) Age: 60										
history cohort of men at	pathologic Gleason score \geq 7; and (3) post-RP	Preop PSA: 9.5 ng	g/ml				progression. Higher decipher				
risk who received no	prostate-specific antigen nadir <0.2 ng/ml.	53% had GS 7	scores correlated with high rate								
additional treatment until		Pathological GS:	Pathological GS: 37% had GS 3+4; 32% had GS ≥9 of								
the time of metastatic	Evolucion esiteria: Matentacia prior to DD: Datiente	Finalin and					correlation between decipher and				
progression.	Exclusion criteria: Metastasis prior to RP; Patients	Findings	Findings								
	who received neoadjuvant tx, radiation and/or	99 patients had me	etastasis among	Decipher may increase the							
	There was a significant correlation btw Decipher and incidence of biochemical recurrence, metastasis, and prostate cancer specific mortality (p<0.001)										
	Index test: Decipher	10 year offer PD									
	Index lest. Decipher	score corresponde	d to 47% metast	asis Intermediate	Decipher score (orresponded to					
		31% metastasis		Risk of bias:							
	Comparator: CAPRA-s, clinicopathological factors	5170 11010310313.	Retrospective design single-								
		Decipher was inde	center 27% (96/356) patients did								
			pendenaj preg			, , p (010 11	not have tumor blocks available.				
	Follow-up: 9 v	Model 2: CAPRA-S	5 1.60 (1.46-1.76). P<0.01. Decipt	ner: 1.32 (1.17-1.5	1) [.] P<0.01	COL				
				,, · · · · · , - · · · ·	(.,,					
	Primary outcome: regional or distant metastases. Decipher C-index (C-index is similar to AUC): 0.76										
	Decipher increased the c-index of Eggener and CAPRA-S risk models from 0.76 and										
		0.77 to 0.86 and 0.									
(Glass et al., 2016)	Design: retrospective study	Patients' characte	Conclusion: Decipher improved								
		Patients had aggre	the prediction of cancer								
Aim: determine the value	N=224	preoperative prosta	ate specific antig	en 20 ng/ml or gr	eater, pathologica	I Gleason score 8	recurrence beyond that of				
of Decipher to predict		or greater, stage p	T3 disease or po	sitive surgical ma	rgins at prostatec	tomy.	-				

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prostate cancer outcomes among patients after prostatectomy in a community health care setting.	Inclusion criteria: Patients had aggressive prostate cancer with at least 1 of several criteria such as preoperative prostate specific antigen 20 ng/ml or greater, pathological Gleason score 8 or greater, stage pT3 disease or positive surgical margins at prostatectomy. Patients who received no neoadjuvant therapy, and no adjuvant postoperative radiation therapy, hormonal therapy or chemotherapy. Exclusion criteria: Tumors with spread to regional nodes Intervention: Decipher Comparators: CAPRA-S (Cancer of the Prostate Risk Assessment Post-Surgical) score Median Follow-up of censored patients: 9 y (6-12) Primary outcome: clinical recurrence or metastasis after surgery evaluated using a time dependent c-index. Secondary outcomes: biochemical recurrence and salvage treatment failure; performance of Decipher in comparison to CAPRA-S and their combination for the prediction of recurrence and treatment failure.	Median age (IQR): 57 (46-64) Median ng/ml preop PSA (IQR): 6.1 (4.8-8.9) 59% had prostatectomy GS of 7 61% had positive surgical margins 33% had seminal vesicle invasion CAPRA-S Intermediate risk score (3-5): 60.7% (136) 12/224 experienced clinical recurrence 68 had biochemical recurrence 34 experienced salvage treatment failure. Recurrence rates by Decipher risk category at 10-y post prostatectomy: Decipher low score: 2.6% vs 13.6% for average to high score (P=0.02) Discrimination accuracy for clinical recurrence measured by C-index: Decipher: 0.8 (0.64 – 0.92) CAPRA-S: 0.73 (95% CI 0.49 – 0.95) CAPRA-S + Decipher: 0.84 (C-index increased by 0.11). Multivariate analysis for clinical recurrence: Decipher score: HR 1.48 (1.09 – 2.01), P=0.01 CAPRA-S: HR 1.27 (0.97 – 1.66), P=0.08	conventional pathological predictors. This may help providers to add other tx to patients classified as high risk of recurrence by Decipher. RoB: Retrospective design, moderate to small sample size, inherent limitations to retrospective design, there were few numbers of end points, this cohort of patients was predominantly white Of note, white is predominant in all the studies.
	1	Clinical utility	
Authors: (Marascio et al., 2020) Aim: to determine the impact of GC testing on postoperative	Design: registry based study There were two cohorts: the clinical utility & clinical benefit cohorts N= 3910 (n=3455 in the adjuvant and n=455 in salvage), N=102 respectively	Patient's characteristics: Patients with adverse features (≥pT3 or positive margins) post prostatectomy who underwent decipher testing. There were two cohorts: the clinical utility & clinical benefit cohorts NO significant difference was reported btw the cohorts.	The utilization of GC significantly influenced treatment recommendations with a number needed to test of 3. GC may be used in clinical practice.
management in men with prostate cancer post prostatectomy.	Inclusion criteria: pathological stage ≥pT3 or positive margins; providers must be certified for using GC. Patients were required to have undetectable PSA after RP and harbor one or	Age: 63 – 69 y Race: Pre-operative PSA: 6.9 GS:	Limitations: Only 58% had both pre & post
Country: USA	more AP features (positive surgical margins or pT3 disease).	Clinical stage: RP grade groups: Majority in both cohorts had GG2 or GG3	GC provider tx recommendations. There is lack of follow-up data in
	-		

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	Exclusion criteria: Patients with lymph node positive or	Pathology T stage Positive margins: r	the clinical utility cohort. There was no control group.					
	had received neoadjuvant therapy.	GC risk group: In t clinical utility coho	he clinical ben rt, most patient	Overall, risk of bias is high.				
	Index test: Decipher genomic classifier Findings: Comparator: GC classified 28, 24, and 48% as low- (GC < 0.45), intermediate- (0.45–0.60), and high- (>0.60) genomic-risk, respectively.							
	Follow-up: 22 months in clinical benefit cohort, not available in clinical utility cohort	These suggest a 5	-year metastas					
		Change in tx reco	ommendations					
	Primary outcome: early BCR within 2-year post-	Provider Recommendations	Pre-GC					
	achieving nadir (<0.1 ng/ml)).	Observation + PSA monitoring	69% (n = 1384),	Increased to 75%				
			25% (n = 501)	Decreased to 14%				
	Other: Time to BCR; Influence of the GC test on	ART + ADT	5% (n = 92)	Increased to 9%				
	decision-making in adjuvant setting	adjuvant ADT alone	1% (n=25)	Increased to 2%				
				P for all <0.001 Tx changed for 39% of patients NNT of 3 to change one tx decision	-			
		Tx was intensified cases, and 30 and	or de-intensifie 14% of salvag					
		High GC score wa 13.8) <0.001].						
		Clinical benefit col 61% had high risk therapy (ART), 2% those who did not	nort: GC. Among th had 2-year PS receive the rec					
		In low & intermedia the recommendation was comparable b ART.						
(Gore et al., 2017)	Sore et al., 2017) Design: prospective study Patient's characteristics							
Aim: evaluated the impact of the Decipher test on	N=265 (n=150 for ART, n=115 for SRT)	Patients had prost had adverse patho	ate cancer that	Decipher test may significantly impact treatment change in this population.				
decision-making for ART	Two cohorts were used: ART & SRT arms.	Modian Ago: 62	S/					
	Inclusion criteria: "Patients had prostate cancer	Race:						

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Country: That was previously treated with radical positive surgical margins into the ATF or SRT. mem with pathological agrans into the ATF arm. Patients who are eligible for ATF was that are equided to constrain divestici invision extension addres smith elisses are definite biochemical diseases recurrence (BCN), defined as a PSA 0.2 mg/m, with a confirmatory reading, were enclosed into the SRT mem with effective surgical margins into the ATF arm. Patients with a PSA increase of definite biochemical diseases. The definition of the patients in the ATF arm. Patients with a PSA increase of definite biochemical disease. The definition of the patients in the ATF arm. Patients with a PSA increase of definite biochemical disease. The definition of the patients in the ATF arm. Patients with a PSA increase of definite biochemical disease. The definition of the patients in the ATF arm. Patients with a PSA increase of definite biochemical disease. The definition of the patients in the ATF arm. Patients with a PSA increase of definite biochemical disease. The definition of the patients in the ATF arm. Patients with a PSA increase of definite biochemical disease. The definition of the patients in the ATF arm. Patients with a PSA increase of definite biochemical disease. The definition of the patients in the ATF arm. Patients with a PSA increase of definite biochemical disease. The definition of the patients in the ATF are approximated and the patients in the ATF and and a the patients with a PSA increase of definite biochemical disease. The definition of the patients in the ATF and and the patient in the ATF and and the patients in the ATF and and the patients in the ATF and and the patients in the ATF and and the patient in the ATF and a					~ -									
Use: Clinical stage: Use: Clinical stage: Use: Clinical stage: Provide Comparison: Clinical stage: Provide Comparison:<	Country:	that was previously treated with radical	Pre-operative PS/	4: 6.3 -	- 6.7							RoB: High (confounders, SRT		
were being considered for either ART or SRT. men with pathological classification of proteins in the ART arm. protective constrained of the arm. protective constrained arm. proteconstraine.		prostatectomy and										arm had small sample size, there was no control group,, this is an		
minimum with pathological segment of the product of the segment of the product of the segment of the product of the segment o		were being considered for either ART or SRT.	Cirrical stage:										an	
Prostate cancer (le. pathological classification of T3 disease, including mer with extraposition extension and/or seminal vasiole invasion) or patients who were eligible for AST were required to have undergone surgery within the preceding 12 months. Patients with a PSA increase or definite biochemical disease or of definite biochemical disease or definite biochemical disease or encurrence (BCR, defined as a PSA 0.2 ng/mL, with a confirmatory reading, were enculled in the SRT arm. Patients who were eligible for AST were allower allower to same to same to same to same to same to comparator. China disease or encurrence (BCR, defined as a PSA 0.2 ng/mL, with a confirmatory reading, were enculled in the SRT arm. Decipher disasfield 33% as low risk and 31%, as high risk. In the SRT arm. Decipher disasfield 33% as low risk and 31%, as high risk. In the SRT arm. Decipher disasfield 33% as low risk and 31% as high risk. In the SRT arm. Decipher disasfield 35% as low risk and 31% as the same to same to same to same to same to comparator. clinical variables/before and after GC comparator. clinical variables/before and after GC Follow-up: NR Primary outcome: to determine whether Decipher impacts treatment recommendations after RP and at time of BCR. RT and to same to same		men with pathologically non-organ-confined										interim report for whom tx		
T3 disease, including men with extraportation extension and/or services/or of positive surgical margins into the ART arm. Paietas who were eligible for ART were allowed to strate met egone surgicy within the preceding of difficult biochemical diseases recurrence (BCR), defined as a PSA 0.2 ng/mL with a confirmatory reading, were encolled into the SRT arm. Paietas who were eligible for SRT were allowed to strate received adjuvant hormone therapy before their BCR?. Pathology 7 stage: mean patients were PZ & T3a Coils group; Inthe ART group, Becipher dassified 45% as low risk and 32% as high risk. Bactual (x). To accurrence (BCR), defined as a PSA 0.2 ng/mL with a confirmatory reading, were encolled into the SRT arm. Patients who were eligible for SRT were allowed to base realized of SUrgery. Pathology 7 stage: mean patients were PZ & T3a Constrained adjuvant stage. Staff adjuvant stage staff adjuvant stage. Comparator: clinical variables/before and after GC Surgery. Comparator: clinical variables/before and after GC Poils of a surgery. Not and staff adjuvant stage. Not and staff adjuvant stage. Staffield by Decipher risk group in ART and staff adjuvant systemic therapy. Not and staff adjuvant systemic therapy. Intervention: Decipher GC Comparator: clinical variables/before and after GC Follow-up: NR Primary outcome: to determine whether Decipher impacts treatment recommendations after RP and at time of BCR. Decipher risk group in ART cohort: <u>Notominediation by Decipher risk group in SRT cohort: <u>Notominediation by Decipher risk group in SRT cohort: <u>Notominediation by Decipher risk group in SRT cohort: <u>Notominediation by Decipher risk group in SRT cohort:</u> <u>Notominediation by Decipher risk group in SRT cohort:</u> <u>Notominediation by De</u></u></u></u>		prostate cancer (ie, pathological classification of	RP grade groups:			_						recommended may not repres	sent	
extension and/or seminal vesicle invasion) or positive surgical many since the ART arm, Patients who were eligible for ART were required to have undergone surgery within the preceding 12 months. Patients with a PSA increase or definite biochemical desease nonumence (BCR), defined as a PSA 0.2 ng/mL were received adjuvant bormone therapy before their BCR*. Positive margins: half of the patients in the ART arm, and near half of patients in the ST rough adjuvant as PSA 0.2 ng/mL were received adjuvant hormone therapy before their BCR*. Exclusion criteria: Patients with metastatic disease. Failure of PSA to nadif to 50.1 ng/mL within 3 months of surgery, receipt of needodjuvant androgen deprivation therapy. PMSC PusiciC Nearest Patients PusiciC Nearest Patients ADT or to patients in the ART arm, Decipher fass iffed of the posting fast and the soft to 50.1 ng/mL within 3 months of surgery, receipt of needodjuvant androgen deprivation therapy. PMSC Nearest Patients PusiciC Nearest Patients Nearest Patients Nearest Patients Follow-up: NR Primary outcome: to determine whether Decipher impacts treatment recommendations after RP and at time of BCR. Decipher risk group in ART cohort: Decipher risk group in SRT cohort: Recommendation file domonance and streatment recommendations after RP and at time of BCR. Decipher risk group in SRT cohort: Decipher risk group in SRT cohort: Recommendation file domonance and domonance and do		T3 disease, including men with extraprostatic	Pathology T stage	e: most	patient	s were T2	2 & T3a					actual tx).		
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Clinical Knowledge Development Support, Kaiser Permanente Washington

Γ		Observation	000/	740/	550/	500/	0/	0/			
		Observation	63%	74%	55%	59%	%	%]		
		more intense therapy (SRT					69%	44%			
		instead of									
		and ADT instead									
		of RT alone, or									
		ADT)			I]		
		Association betw	een Dec	cipher & t	reatmer	nt change	:				
		There is significa	nt assoc	iation bt	w Decipl	her & trea	tment cha	ange after a	ljusting for		
		demographic, clir	nical, and	d patholo	Dgical va	P-0.03	n ar i , Oi	R was 1.48 (1.19-1.85),		
		1 <.001. 11 SIX1,	OIX was	1.50 (1.0	55-1.05)	, 1 –0.05.					
		Decision effective	eness:								
		The use of the D	ecipher t	test was	associa	ted with d	ecreased	decisional o	onflict overall.		
		IN ART arm, deci $(P_{<}0.001)$	sional co	onflict wa	is reduc	ed from 2	5 before	GC to 19 att	erGC		
	In the SRT cohort, decisional conflict decreased from 27 to 23 (P<0.001).										
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(Michalanaulaa at al	Decign: prospective study	Detients' sharest	oriation							This study domonstrated that	
(Michalopoulos et al., 2014)	N=146	Patients characte	ensiics. state car	ncer with	adverse	e patholoc	nic feature	s following l	RP (pathologic	Decipher may influence treatment	
,	Intervention: Decipher GC	stage pT3 or positive surgical margins.								recommendations in post-RP	
Aim: To assess the effect		Age: 63		patients with high risk of metastasis. It may guide adjuvant							
of an individualized	Comparator: before and after GC	Preoperative PS/	4: <10 n								
test. for predicting		GC reclassified 60% of high-risk patients as low-risk.								regarding adjuvant therapy may	
metastasis following										decreased with the use of GC.	
radical prostatectomy		Tx recommendat	ions cha	inge occi	urred in	31% of pa	atients.				
(RP), on urologists		After GC test 42.5% of nationts who were initially recommended adjuvant therapy were								Rob: High (small sample size,).	
decisions when caring for		recommended to undergo observation.									
high-risk patients.		Ĭ									
		GC risk was a sig		predicto	r of treat	ment reco	ommenda	ations (OR =	4.04; 95% CI =		
		2.30, 0.92, p < 0.	0001). II	เ พลร เกิย	only pre						
		Decisional conflic	ct: With t	he use o	f Deciph	ner GC, th	nere was l	es decisiona	l conflict with		
		regard to adjuvar	nt tx deci	isions (P	<0.001).						

Other studies

Decipher using biopsy:

(Press et al., 2022): This was a retrospective cohort study among patients with low- and favorable intermediate-risk prostate cancer on active surveillance who underwent biopsy-based Decipher testing. The authors included 133 patients with a median age of 67.7 yr and median prostate-

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specific of 5.6 ng/ml. 75.9% had GG1 and 24.1% had GG2 disease. Decipher score was significantly associated with biopsy upgrading (OR 1.37 (1.05-1.79; p = 0.02)). The Decipher score was associated with upgrading among patients with biopsy GG 1 disease, but not GG2 disease.

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