Applied Health Economics and Health Policy

Cost-effectiveness analysis of Stockholm 3 testing compared to PSA as the primary blood test in the prostate cancer diagnostic pathway: A decision tree approach

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Online Resource 2: Calculations of relative sensitivity and specificity of the PSA and STHLM3 test

Calculations based on Grönberg et al. 2015

Participants enrolled in the study	n=47 688
Participants that had a biopsy sample taken (PSA≥3/STHLM3≥10%)	n=5426
Excluded (men with PSA≥10. 5α-reductase inhibitor users or incomplete data)	n=479
Participants included in sensitivity/specificity calculations	n=4947

PSA	**Condition positive**	**Condition negative**	**Total**
Test positive (≥3 to 10)	603	3355	3958
Test negative (<3)	115	874	989
Total	718	4229	4947

	Calculated value	**SE**	**SD**	**95% CI**
Sensitivity	0.84	0.014	0.015	(0.81-0.87)
Specificity	0.21	0.006	0.008	(0.19-0.22)
PPV	0.15			
NPV	0.88			
Likelihood ratio	1.06			

STHLM3	**Condition positive**	**Condition negative**	**Total**
Test positive (≥ 10 %)	603	2103	2706
Test negative (< 10 %)	115	2126	2241
Total	718	4229	4947

	Calculated value	**SE**	**SD**	**95% CI**
Sensitivity	0.84	0.014	0.015	(0.81-0.87)
Specificity	0.50	0.008	0.008	(0.49-0.52)
PPV	0.22			
NPV	0.95			
Likelihood ratio	1.69			

Estimated predictive values at 30% population prevalence

	PPV	**NPV**
PSA	0.31	0.75
STHLM3	0.42	0.88

Estimated predictive values at 2.8% population prevalence

	PPV	NPV
PSA	0.03	0.98
STHLM3	0.05	0.99

PPV = (sensitivity x prevalence) / [(sensitivity x prevalence) + ((1 – specificity) x (1 – prevalence))]
NPV = (specificity x (1 – prevalence)) / [(specificity x (1 – prevalence)) + ((1 – sensitivity) x prevalence)]