

**Diagnostic Assessment Report commissioned by the NIHR
on behalf of the National Institute for Health and Care
Excellence**

**Transperineal biopsy in people with suspected prostate
cancer - a systematic review and economic evaluation
Addendum 2**

Produced by Southampton Health Technology Assessments Centre (SHTAC)

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1 Meta-analysis scenarios

The DAR Addendum of 10 Jan 2022 included additional network meta-analysis (NMA) scenarios with the trial by Hara and colleagues (2008)¹ either excluded, or re-labelled as a comparison between GATP and LATRUS, rather than LAMP versus LATRUS as assumed in the original DAR analyses. This stemmed from expert advice that the methods of anaesthesia in the Hara study (spinal anaesthesia in the transperineal arm and caudal block in the transrectal arm) were more appropriately aligned with general anaesthesia rather than local anaesthesia. See section 1.1 of the Addendum for further explanation and results of these NMA scenarios.

It has since been noted that another trial (Takenaka et al. 2008)² classified in the original NMAs as a comparison between LAMP and LATRUS had used the same methods of anaesthesia as in the Hara trial. We have therefore conducted further NMA analysis excluding or reclassifying both the Hara and Takenaka trials. We show the results of these additional NMA scenarios below.

1.1 Decision question 1

Hara and Takenaka both favour LATRUS over LAMP. Thus, removing Takenaka as well as Hara (Figure 1 below) increases the relative risk of cancer detection for LAMP and also for GATP (which is only connected to LATRUS via LAMP). Whereas relabelling Takenaka and Hara as GATP versus LATRUS (Figure 2) reduces the relative risk for GATP but increases the relative risk for LAMP.

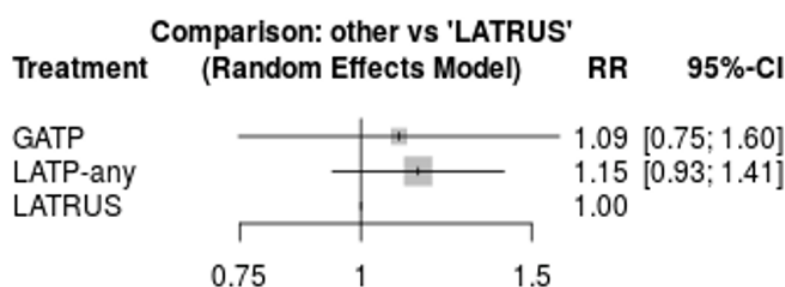


Figure 1 Network meta-analysis forest plot of cancer detection rates for LAMP-any vs LATRUS vs GATP grid and stepping device, excluding Hara et al 2008 and Takenaka et al 2008 (decision question 1)

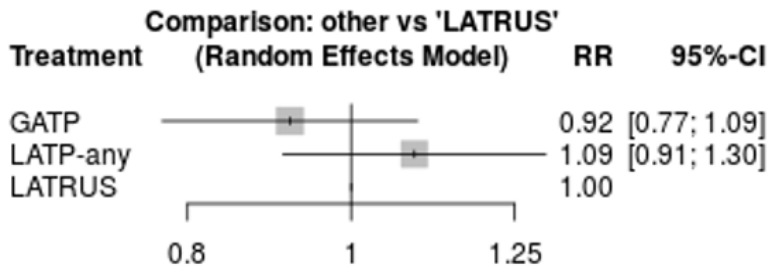


Figure 2 Network meta-analysis forest plot of cancer detection rates for LATP-any vs LATRUS vs GATP grid and stepping device, relabelling Hara et al 2008 and Takenaka et al as GATP vs LATRUS (decision question 1)

1.2 Decision question 2

The transperineal arms in both Hara and Takenaka were conducted without a freehand device. Thus, removing these studies does not affect the results for LATP-freehand (which is only connected to LATRUS). Excluding Hara and Takenaka (Figure 3) increases the relative risk for LATP-other (without freehand device) and GATP; whereas relabelling these studies increases the relative risk for LATP-other but reduces the relative risk for GATP.

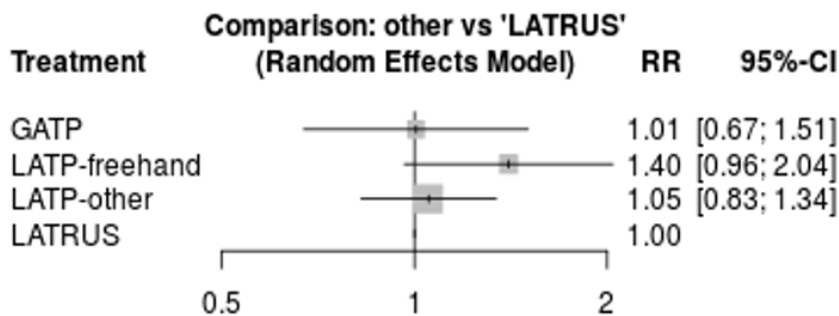


Figure 3 Network meta-analysis forest plot of cancer detection rates for LATP-freehand vs LATP-other vs LATRUS vs GATP, excluding Hara et al 2008 and Takenaka et al 2008 (decision question 2)

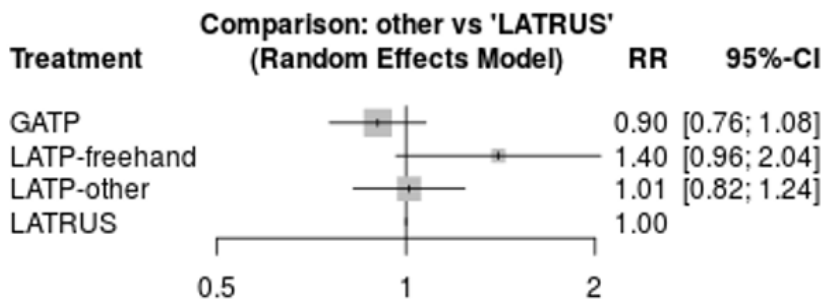


Figure 4 Network meta-analysis forest plot of cancer detection rates for LATP-freehand vs LATP-other vs LATRUS vs GATP, relabelling Hara et al 2008 and Takenaka et al 2008 as GATP vs LATRUS (decision question 2)

2 Additional economic scenarios

In this section we show results for the above NMA scenarios applied to our revised base case (section 4 of the DAR Addendum of 10 Jan 2022). The additional scenarios have been added to the NMA scenario analyses reported in Tables 33 to 36 in the previous Addendum.

2.1 Decision question 1

When compared with the revised base case with only Hara excluded, the scenarios with both Hara and Takenaka excluded or relabelled reduce the ICERs for LATP (Table 1 and Table 2). With both studies excluded (scenario 3), the ICERs are below £20,000 per QALY in all modelled subgroups. With both studies relabelled (scenario 4), the ICERs are below £20,000 per QALY in subgroups A-C and £20,000- £30,000 per QALY in subgroup D.

Table 1 NMA scenarios for decision question 1, subgroup A (deterministic)

Biopsy method	RR ^a	Total		Incremental		ICERs
		Cost	QALYs	Cost	QALYs	£/QALY
Revised EAG base case: NMA excluding Hara						
LATRUS	1.00	£19,878	9.2989			
LATP-any	1.05	£19,937	9.3026	£58	0.0037	£15,669
GATP	1.01	£20,420	9.3012	£483	-0.0014	Dominated
NMA scenario 1: Hara classified as LATP-any versus LATRUS						
LATRUS	1.00	£19,878	9.2989			
LATP-any	1.01	£19,944	9.3012	£66	0.0023	£28,322
GATP	0.96	£20,430	9.2994	£486	-0.0018	Dominated
NMA scenario 2: Hara classified as GATP versus LATRUS						
LATRUS	1.00	£19,878	9.2989			
LATP-any	1.03	£19,941	9.3019	£62	0.0030	£20,472
GATP	0.92	£20,439	9.2978	£499	-0.0041	Dominated
NMA scenario 3: Hara and Takenaka excluded						
LATRUS	1.00	£19,878	9.2989			
LATP-any	1.15	£19,919	9.3058	£40	0.0069	£5,859
GATP	1.09	£20,405	9.3039	£486	-0.0019	Dominated
NMA scenario 4: Hara and Takenaka classified as GATP versus LATRUS						
LATRUS	1.00	£19,878	9.2989			
LATP-any	1.09	£19,929	9.3039	£51	0.0050	£10,096
GATP	0.92	£20,439	9.2978	£510	-0.0061	Dominated

^a Relative risk for cancer detection compared with LATRUS

Table 2 NMA scenarios for decision question 1, subgroup comparison (deterministic)

Biopsy method	RR ^a	ICERs (£ per QALY gained)			
		Subgroup A	Subgroup B	Subgroup C	Subgroup D
Revised EAG base case: NMA excluding Hara					
LATRUS	1.00				
LATP-any	1.05	£15,669	£21,551	£21,095	£25,514
GATP	1.01	Dominated	Dominated	Dominated	Dominated
NMA scenario 1: Hara classified as LATP versus LATRUS					
LATRUS	1.00				
LATP-any	1.01	£28,322	£30,256	£30,188	£31,261
GATP	0.96	Dominated	Dominated	Dominated	Dominated
NMA scenario 2: Hara classified as GATP versus LATRUS					
LATRUS	1.00				
LATP-any	1.03	£20,472	£25,271	£24,939	£28,143
GATP	0.92	Dominated	Dominated	Dominated	Dominated
NMA scenario 3: Hara and Takenaka excluded					
LATRUS	1.00				
LATP-any	1.15	£5,859	£11,610	£11,111	£16,792
GATP	1.09	Dominated	Dominated	Dominated	Dominated
NMA scenario 4: Hara and Takenaka classified as GATP versus LATRUS					
LATRUS	1.00				
LATP-any	1.09	£10,096	£16,369	£15,840	£21,322
GATP	0.92	Dominated	Dominated	Dominated	Dominated
^a Relative risk for cancer detection compared with LATRUS					

2.2 Decision question 2

The two new NMA scenarios do not affect the cost-effectiveness results for decision question 2 (Table 3 and Table 4 below). The ICER for LAMP-freehand compared with LATRUS is constant across the NMA scenarios because the relative risk for this comparison does not depend on the Hara or Takenaka trial. The other comparators are dominated for all subgroups and NMA scenarios.

Table 3 NMA scenarios for decision question 2, subgroup A (deterministic)

Biopsy method	RR ^a	Total		Incremental		ICERs £/QALY
		Cost	QALYs	Cost	QALYs	
Revised EAG base case: NMA excluding Hara						
LATRUS	1.00	£19,878	9.2989			
LAMP-freehand	1.40	£19,888	9.3122	£10	0.0133	£743
LAMP-other	0.98	£19,966	9.3001	£77	-0.0120	Dominated
GATP	0.93	£20,437	9.2982	£471	-0.0019	Dominated
NMA scenario 1: Hara classified as LAMP-other versus LATRUS						
LATRUS	1.00	£19,878	9.2989			
LAMP-freehand	1.40	£19,888	9.3122	£10	0.0133	£743
LAMP-other	0.94	£19,974	9.2986	£86	-0.0135	Dominated
GATP	0.90	£20,444	9.2970	£470	-0.0016	Dominated
NMA scenario 2: Hara classified as GATP versus LATRUS						
LATRUS	1.00	£19,878	9.2989			
LAMP-freehand	1.40	£19,888	9.3122	£10	0.0133	£743
LAMP-other	0.97	£19,968	9.2998	£80	-0.0124	Dominated
GATP	0.89	£20,446	9.2966	£478	-0.0032	Dominated
NMA scenario 3: Hara and Takenaka excluded						
LATRUS	1.00	£19,878	9.2989			
LAMP-freehand	1.40	£19,888	9.3122	£10	0.0133	£743
LAMP-other	1.05	£19,952	9.3026	£63	-0.0096	Dominated
GATP	1.01	£20,420	9.3012	£468	-0.0014	Dominated
NMA scenario 4: Hara and Takenaka classified as GATP versus LATRUS						
LATRUS	1.00	£19,878	9.2989			
LAMP-freehand	1.40	£19,888	9.3122	£10	0.0133	£743
LAMP-other	1.01	£19,960	9.3012	£71	-0.0109	Dominated
GATP	0.90	£20,444	9.2970	£484	-0.0042	Dominated

^a Relative risk for cancer detection compared with LATRUS

Table 4 NMA scenarios for decision question 2, subgroup comparison (deterministic)

Biopsy method	RR ^a	ICERs (£ per QALY gained)			
		Subgroup A	Subgroup B	Subgroup C	Subgroup D
Revised EAG base case: NMA excluding Hara					
LATRUS	1.00				
LATP-freehand	1.40	£743	£4,595	£9,284	£10,640
LATP-other	0.98	Dominated	Dominated	Dominated	Dominated
GATP	0.93	Dominated	Dominated	Dominated	Dominated
NMA scenario 1: Hara classified as LATP versus LATRUS					
LATRUS	1.00				
LATP-freehand	1.40	£743	£4,595	£9,284	£10,640
LATP-other	0.94	Dominated	Dominated	Dominated	Dominated
GATP	0.90	Dominated	Dominated	Dominated	Dominated
NMA scenario 2: Hara reclassified as GATP versus LATRUS					
LATRUS	1.00				
LATP-freehand	1.40	£743	£4,595	£9,284	£10,640
LATP-other	0.97	Dominated	Dominated	Dominated	Dominated
GATP	0.89	Dominated	Dominated	Dominated	Dominated
NMA scenario 3: Hara and Takenaka excluded					
LATRUS	1.00				
LATP-freehand	1.40	£743	£4,595	£9,284	£10,640
LATP-other	1.05	Dominated	Dominated	Dominated	Dominated
GATP	1.01	Dominated	Dominated	Dominated	Dominated
NMA scenario 4: Hara and Takenaka reclassified as GATP versus LATRUS					
LATRUS	1.00				
LATP-freehand	1.40	£743	£4,595	£9,284	£10,640
LATP-other	1.01	Dominated	Dominated	Dominated	Dominated
GATP	0.90	Dominated	Dominated	Dominated	Dominated
^a Relative risk for cancer detection compared with LATRUS					

References

1. Hara R, Jo Y, Fujii T, et al. Optimal approach for prostate cancer detection as initial biopsy: prospective randomized study comparing transperineal versus transrectal systematic 12-core biopsy. *Urology* 2008;71(2):191-5. doi: 10.1016/j.urology.2007.09.029
2. Takenaka A, Hara R, Ishimura T, et al. A prospective randomized comparison of diagnostic efficacy between transperineal and transrectal 12-core prostate biopsy. *Prostate Cancer and Prostatic Diseases* 2008;11(2):134-38. doi: 10.1038/sj.pcan.4500985