Executive summary
Minimally Invasive Laser Techniques for Relief of Bladder Outflow Obstruction (2000 Update)
(Adapted from the report of the Review Group by Ms Ann Scott)

Background
The aim of this review was to compare the safety and efficacy of minimally invasive laser prostatectomy techniques against the current benchmark treatment, transurethral resection of the prostate (TURP). Where possible, comparisons were also made between different laser techniques and between different treatment regimens within the one laser technique in order to determine which was the most safe, efficacious and durable.

Methods
All original, published studies on minimally invasive laser prostatectomy techniques were identified by searching Medline between 1984 and 12/1999; Current Contents between 1993 and 12/1999; Embase between 1974 and 12/1999; and The Cochrane Library between 1966 and 12/1999 (Issue 4). The search terms used were (laser and prostat* and trial*). Additional articles were identified through the reference sections of the studies retrieved. Only human studies, specifically of patients with bladder outflow obstruction and non-malignant enlargement of the prostate, were considered. English language papers detailing randomised-controlled trials, controlled clinical trials, case series or case reports were included.

Results
The small sample size and poor evidence quality of many studies meant that no definitive conclusion could be made as to the safety and efficacy of visual laser ablation of the prostate (VLAP), interstitial laser coagulation (ILC) or contact vaporisation of the prostate (LCV), in comparison to TURP. Nonetheless, the current limited evidence suggested that safety favoured VLAP, ILC and LCV whereas effectiveness favoured TURP. All three laser techniques achieved generally comparable improvements in symptom score, $Q_{\text{max}}$ and PVR but LCV appeared to be safer than VLAP and ILC.

Conclusion and recommendations
The ASERNIP-S Review Group concluded that the evidence base for VLAP, ILC and LCV was inadequate, and recommended that a controlled clinical trial of ILC be conducted. It was also recommended that an audit of VLAP and LCV be undertaken.
Executive Summary
Minimally Invasive Non-Laser Techniques for Relief of Bladder Outflow Obstruction (2000 Update)

Background
The aim of this review was to compare the safety and efficacy of minimally invasive non-laser thermal prostatectomy techniques against the current benchmark treatment, transurethral resection of the prostate (TURP). Where possible, a comparison was also made between different treatment regimens within the one thermal technique in order to determine which was the most safe, efficacious and durable.

Methods
All original, published studies on minimally invasive non-laser thermal prostatectomy techniques were identified by searching Medline between 1984 and 12/1999; Current Contents between 1993 and 12/1999; Embase between 1974 and 12/1999; and The Cochrane Library between 1966 and 12/1999 (Issue 4). The search terms used for TUNA were ((TUNA or needle ablation) and prostat*); for TUMT were ((TUMT or microwave therapy) and prostat*); for TUVP were (transurethral electrovapor* and prostat*); and for HIFU were (focus* ultrasound and prostat*). Only human studies, specifically of patients with bladder outflow obstruction and non-malignant enlargement of the prostate, were considered. English language papers detailing randomised-controlled trials, controlled clinical trials, case series or case reports were included, depending on the quality of evidence available for each procedure.

Results
The small sample size and poor evidence quality of many studies meant that no definitive conclusion could be made regarding the safety and efficacy of high intensify focused ultrasound (HIFU), transurethral microwave therapy (TUMT) or transurethral needle ablation (TUNA), in comparison to TURP. Nonetheless, the current evidence suggested that safety favoured HIFU, TUMT and TUNA whereas effectiveness favoured TURP. A meta-analysis of TURP versus transurethral electrovaporisation of the prostate (TUVP) trials showed that TUVP offered a similar degree of symptomatic relief over a one to two year period, compared to TURP, but with less morbidity.

Conclusion and recommendations
The ASERNIP-S Review Group concluded that TUVP was a suitable alternative to TURP for certain patient groups. The Review Group also concluded that the evidence base for HIFU, TUMT and TUNA was inadequate, and recommended that a controlled clinical trial of HIFU and TUMT be conducted. It was also recommended that an audit of TUNA be undertaken.
ASERNIP-S safety and efficacy recommendations

All members of the original Review Group assessed the updated information contained in the two attached manuscripts. It was determined by consensus that the original ASERNIP-S safety and efficacy classifications for VLAP, ILV, LCV, HIFU, TUVP, TUMT and TUNA should remain unchanged based on the updated evidence base. Therefore, the ASERNIP-S classifications remain as follows:

A. Laser Prostatectomy

i. The classification for Visual Laser Ablation of the Prostate (VLAP) is:

2. The safety and/or efficacy of the procedure cannot be determined at the present time due to an incomplete and/or poor quality evidence-base. An audit is recommended to assess both safety and efficacy.

VLAP is contraindicated in patients with large prostates or with median lobe enlargement.

ii. The classification for Interstitial Laser Coagulation of the prostate (ILC) is:

2. The safety and/or efficacy of the procedure cannot be determined at the present time due to an incomplete and/or poor quality evidence-base. A randomised controlled clinical trial is recommended to assess both safety and efficacy.

ILC is contraindicated in patients with large prostates, median lobe enlargement or those in complete urinary retention.

iii. The classification for Laser Contact Vaporisation of the prostate (LCV) is:

2. The safety and/or efficacy of the procedure cannot be determined at the present time due to an incomplete and/or poor quality evidence-base. An audit is recommended to assess both safety and efficacy.

B. High Intensity Focussed Ultrasound (HIFU)

The classification is:

2. The safety and/or efficacy of the procedure cannot be determined at the present time due to an incomplete and/or poor quality evidence-base. A randomised controlled clinical trial is recommended to assess both safety and efficacy.

HIFU is currently considered an experimental procedure.

C. Transurethral Electrovaporisation (TUVP)

The classification is:

1. The safety and efficacy is established, and the procedure may be introduced into practice.

TUVP may not give satisfactory outcomes for larger prostates. In addition, TUVP may result in a higher incidence of erectile dysfunction, in comparison to TURP.

D. Transurethral Microwave Therapy (TUMT)

The classification is:

2. The safety and/or efficacy of the procedure cannot be determined at the present time due to an incomplete and/or poor quality evidence-base. A randomised controlled clinical trial is recommended to assess both safety and efficacy.
E. Transurethral Needle Ablation (TUNA)

The classification is:
2. The safety and/or efficacy of the procedure cannot be determined at the present time due to an incomplete and/or poor quality evidence-base. An audit is recommended to assess both safety and efficacy.

Members of the Review Group

**ASERNIP-S Director**  Professor Guy Maddern  
**Protocol Surgeon**  Professor Villis Marshall  
**Advisory Surgeon**  Mr John Wheelahan  
**Other Specialty Surgeon**  Associate Professor Randall Morton  
**Nominated Surgeon**  Mr Ross Cartmill, Professor John Nacey  
**ASERNIP-S Researcher**  Dr Ann Scott

November 2000

---------------------

**Important Note**  The information contained in this report is a distillation of the best available evidence located at the time the searches were completed as stated in the protocol. Please consult with your medical practitioner if you have further questions relating to the information provided, as the clinical context may vary from patient to patient.

For further information about ASERNIP-S
Contact Professor Guy Maddern, ASERNIP-S Surgical Director, PO Box 688, North Adelaide, SA 5006, ph. (08) 82391144, fax (08) 82391244, or visit the website ([http://www.surgeons.org/asernip-s](http://www.surgeons.org/asernip-s)). ASERNIP-S is a project of the Royal Australasian College of Surgeons (RACS).