

WATER II Study

Aquablation Procedural Outcomes in Large Prostates (80-150g)

12 Month Results

CUA 2019 Potential Conflict of Interest Disclosure

Speaker /Chair Name	Advisory Boards	Speaker's Bureau	Payment/Honoraria	Grants/Research Support	Clinical Trials	Investments	Patents
Naeem Bhojani	Boston Scientific	-----	Astellas Pfizer	-----	Procept: Water II study	-----	-----

Aquablation Therapy with the AQUABEAM® Robotic System

Prostate tissue resection with a heat-free waterjet

Real-time image guidance

Intra-procedural bi-plane TRUS imaging plus cystoscopic visualization

Surgical planning

Surgeon defined treatment plan prior to Aquablation therapy

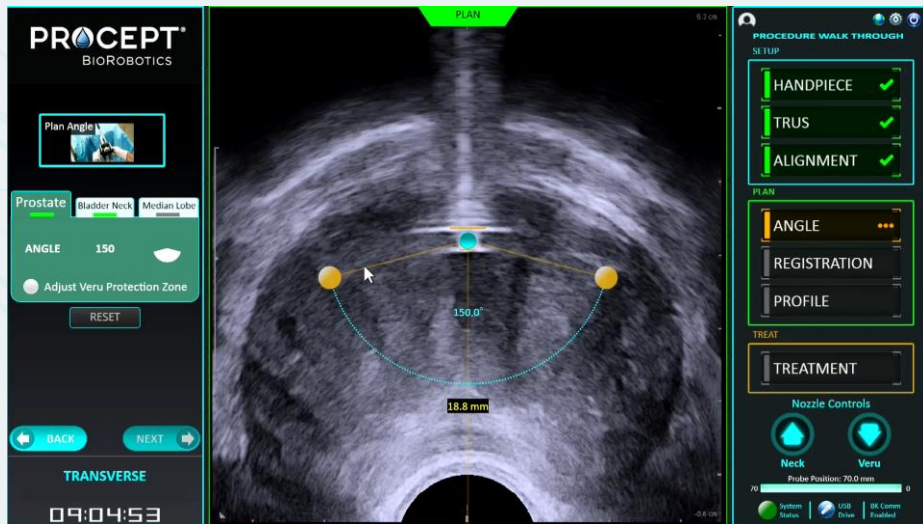
Robotic execution

Robotically controlled, heat-free tissue removal

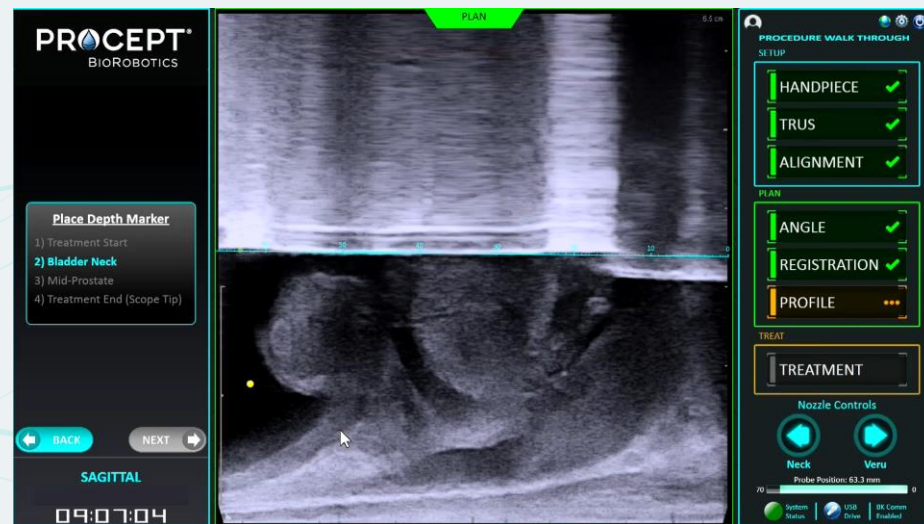
AQUABEAM®
— ROBOTIC SYSTEM —



Aquablation Procedural Planning

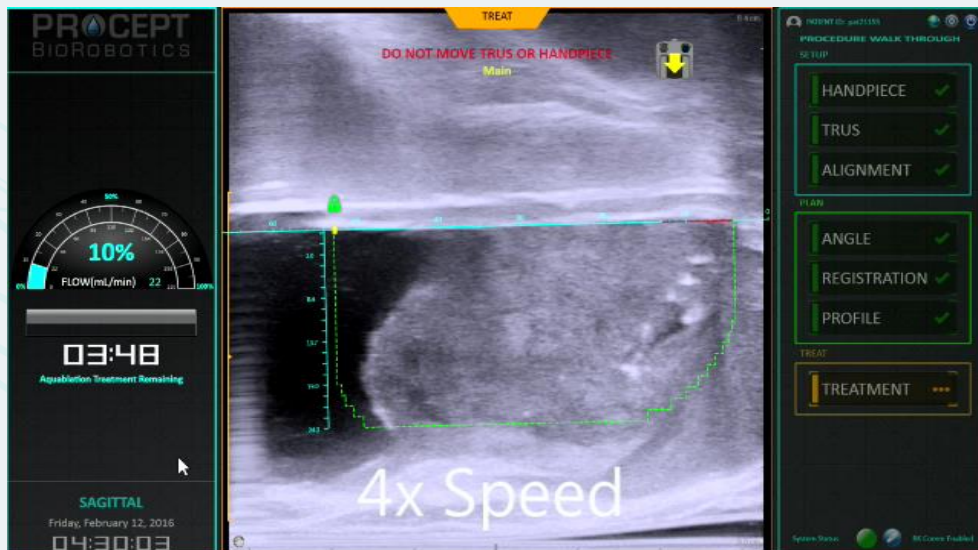


Angle Planning
Transverse View



Contour Planning
Sagittal View

Heat-Free Waterjet Resection



Tissue Resection



Veru Cut

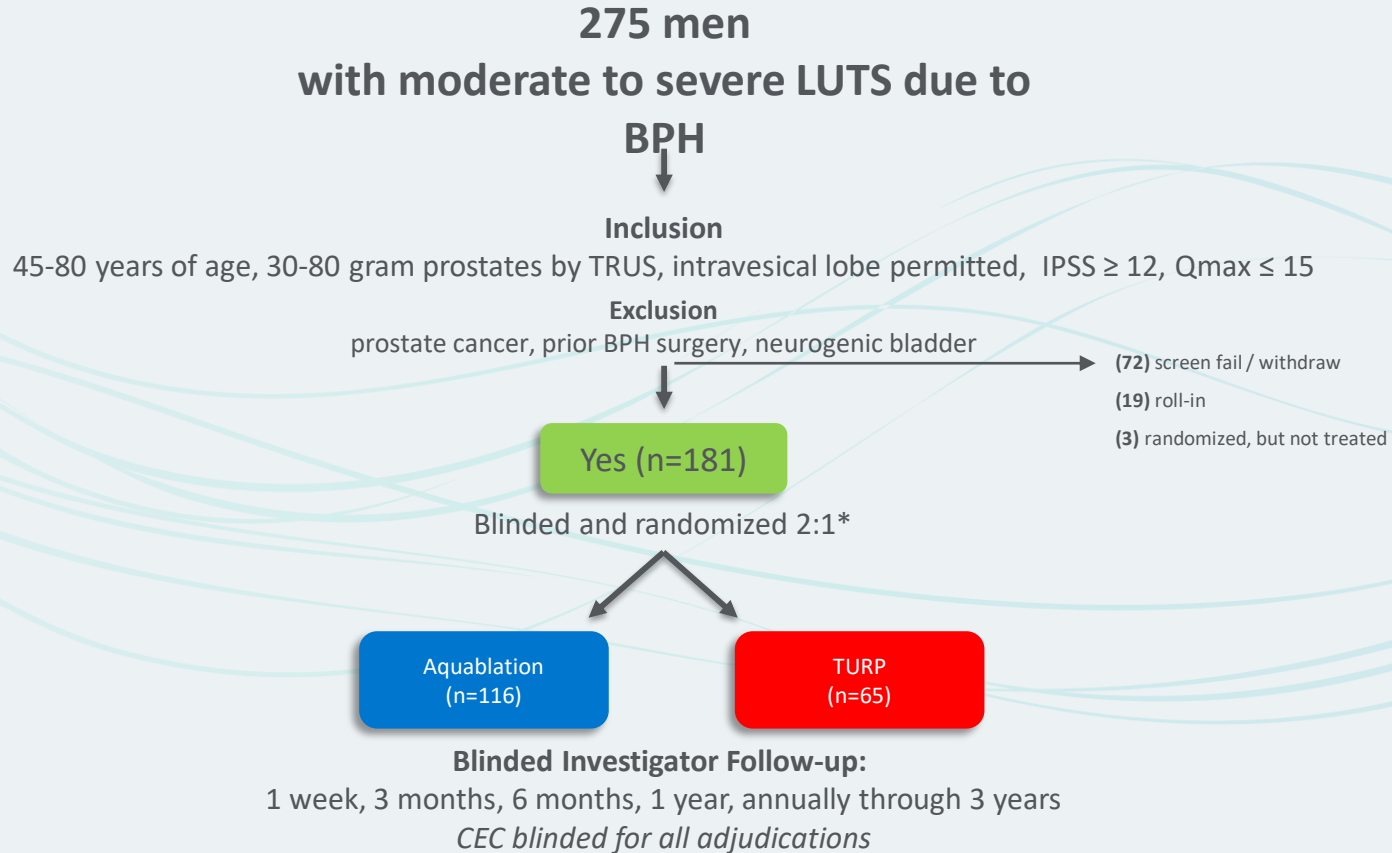
AQUABLATION®

Therapy by PROCEPT BioRobotics

WATER Study

**Aquablation Procedural Outcomes in small to medium Prostates
(30-80g)**

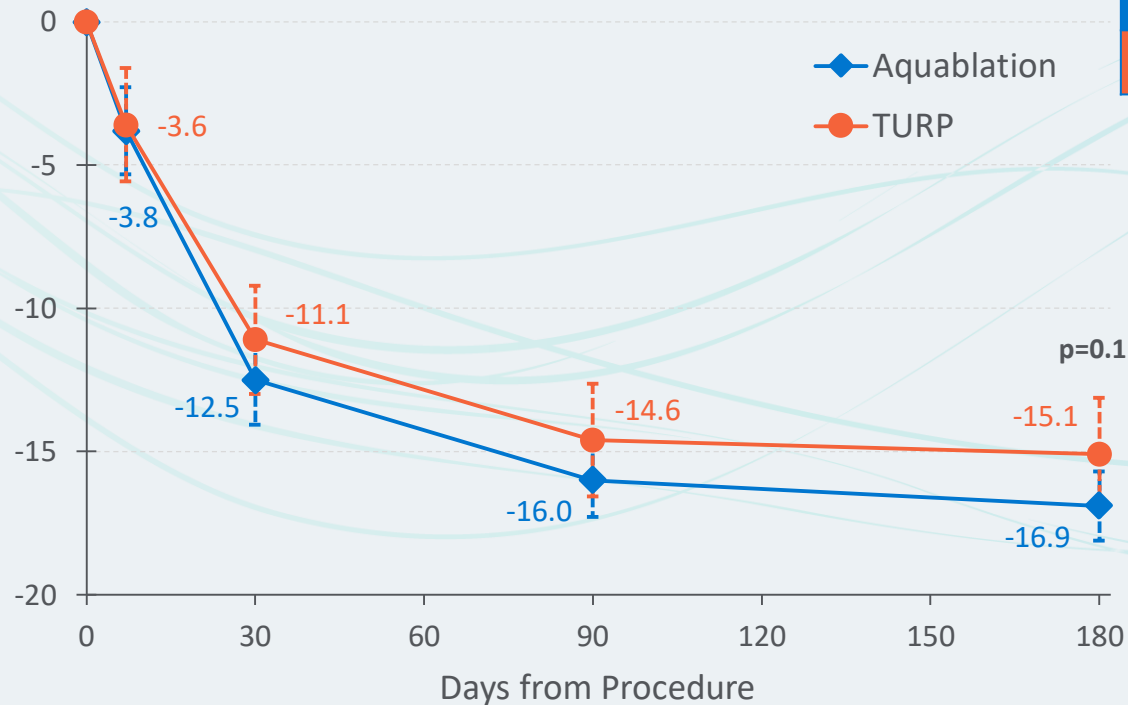
Trial Design



*Stratified by IPSS and center

Primary Endpoint: 6 Month Efficacy

Change Score (IPSS)



IPSS Score	Baseline	6 months
Aquablation	22.9 ± 6.0	5.9 ± 5.0
TURP	22.2 ± 6.1	6.8 ± 5.5

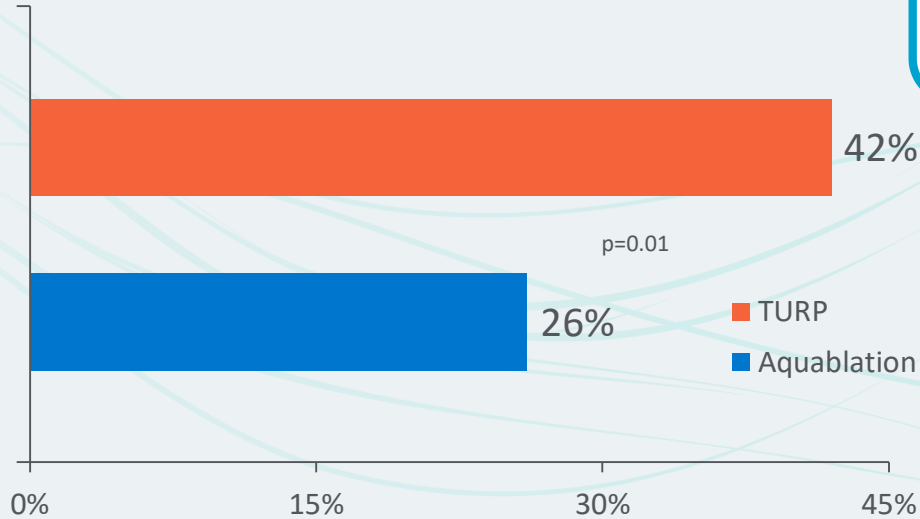
**Aquablation therapy
non-inferior
to TURP**

- 14/17 sites had no prior Aquablation therapy experience
- Median (range) of 5 (1-18) Aquablation procedures/surgeon

Data reported as mean (95% CI)

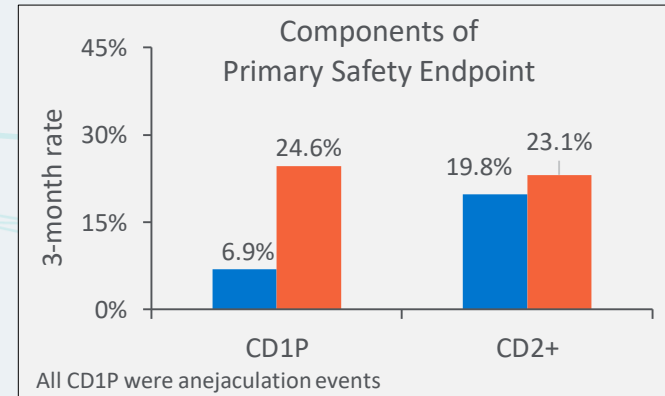
Primary Endpoint: 3 Month Safety

Clavien-Dindo grade 1 persistent (CD1P) events and grade 2 or higher (CD2+) events*



Aquablation therapy superior to TURP

Safety results held consistent at 6 months



* Primary Safety: possibly, probably, definitely

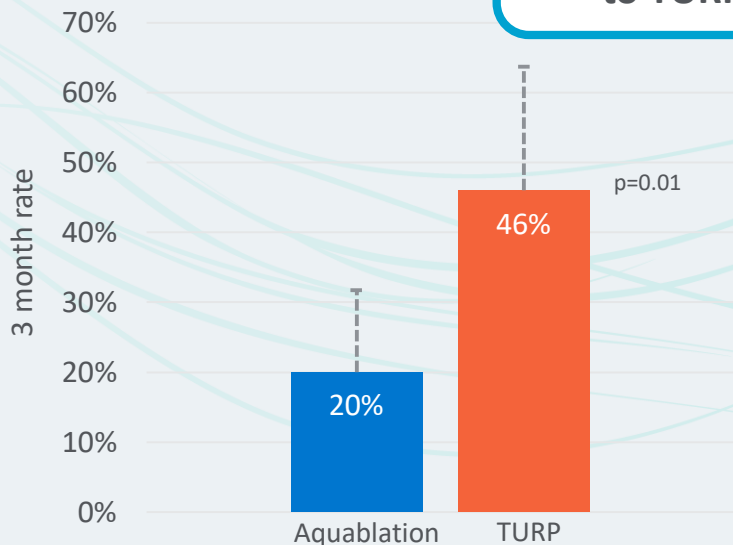
CD1P – Incontinence, erectile dysfunction, and ejaculatory dysfunction

CD2+ – Events requiring pharmacological treatment, blood transfusions, endoscopic, surgical or radiological interventions

Pre-specific Subgroup Analysis: >50g Prostate

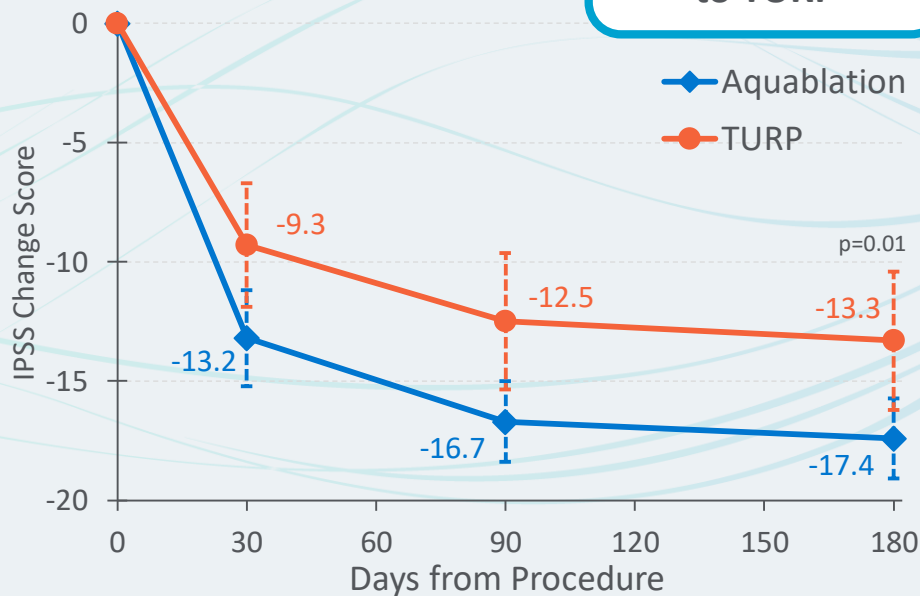
Primary Safety Endpoint

Aquablation therapy superior to TURP



Primary Efficacy Endpoint

Aquablation therapy superior to TURP



AQUABLATION®

Therapy by PROCEPT BioRobotics

WATER II Study

Aquablation Procedural Outcomes in Large Prostates (80-150g)

United States	Site PI / Treating Surgeon(s)	Enrolled
San Diego Clinical Trials	Dr. Mo Bidair	25
Adult & Pediatrics Urology	Dr. Andrew Trainer, Dr. Andrew Arther	12
Virginia Urology	Dr. Eugene Kramolowsky	10
University of Southern California	Dr. Mihir Desai, Dr. Leo Doumanian	6
Albany Medical College	Dr. Ronald Kaufman	4
Indiana University Health	Dr. James Lingeman, Dr. Amy Krambeck	4
Urology of Virginia	Dr. Gregg Eure	4
Wake Forest School of Medicine	Dr. Gopal Badlani	4
The University of Vermont Medical Center	Dr. Mark Plante	4
VA Long Beach Healthcare System	Dr. Edward Uchio, Dr. Greg Gin	4
Mayo Clinic Arizona	Dr. Mitch Humphreys	2
UT Southwestern Medical Center	Dr. Claus Roehrborn	2
Icahn School of Medicine at Mount Sinai	Dr. Steven Kaplan, Dr. Jay Motola	1

Canada	Site PI / Treating Surgeon(s)	Enrolled
University of Montreal Hospital Center	Dr. Kevin Zorn, Dr. Naeem Bhojani	12
University of Toronto	Dr. Dean Elterman	4
University of British Columbia	Dr. Larry Goldenberg, Dr. Ryan Paterson, Dr. Alan So	3

**114 men
with moderate to severe LUTS due to BPH**

↓
Inclusion

45-80 years of age, 80-150cc prostates by TRUS, intravesical lobe and prior BPH surgery permitted, IPSS \geq 12, Qmax \leq 15

Exclusion

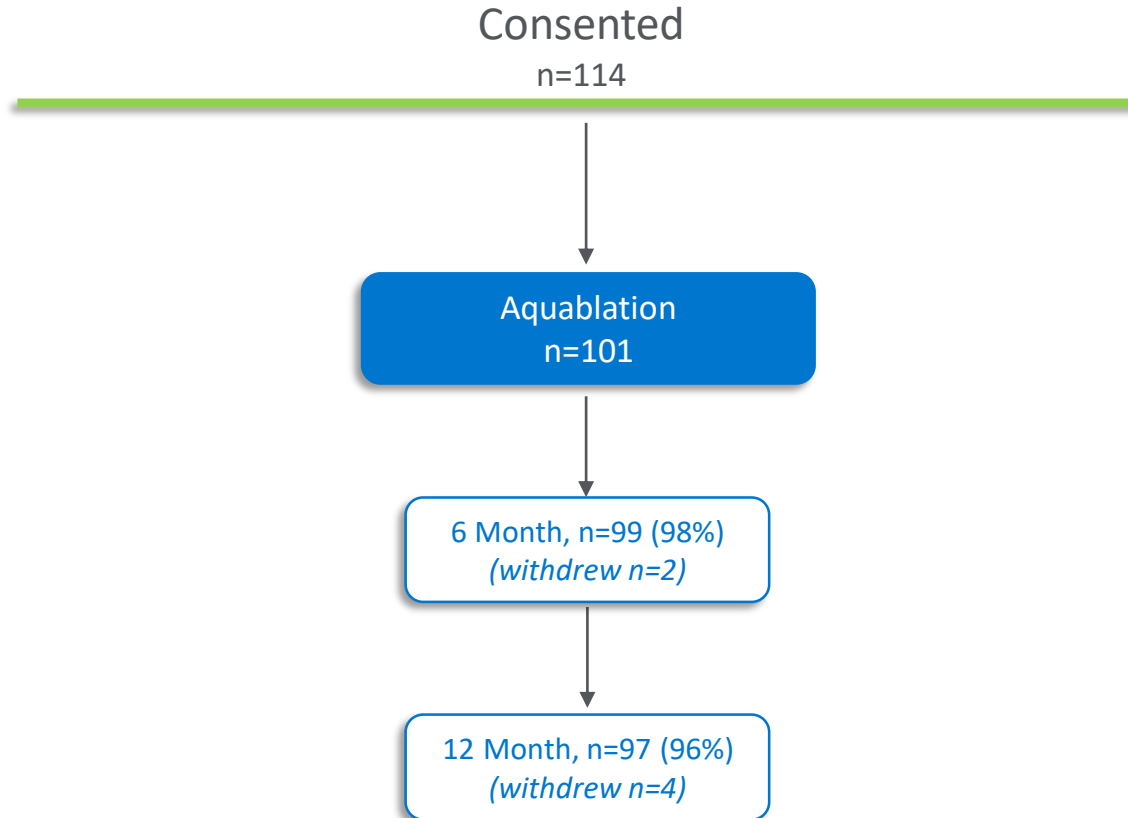
prostate cancer, urinary catheter use daily for 90 or more days → (13) screen fail / withdraw

↓
Yes (N=101)

↓
**Aquablation
(N=101)**

Investigator Follow-up:

1 month, 3 months, 6 months, and 1 year
CEC adjudicates all adverse events



3 Month Safety: Proportion difference in persistent Clavien-Dindo (CD) grade 1 event or a CD grade 2 or higher event by month 3 (probably or definitely related)

- CD Grade definitions for post-operative complications
 - Grade 1 = persistent erectile dysfunction, ejaculatory dysfunction or incontinence
 - Grade 2 = requires pharmaceutical treatment
 - Grade 3 = requires surgical, endoscopic, or radiologic intervention
 - Grade 4 = life threatening
 - Grade 5 = death
- Compared to an OPC of 65%, 80% power
- Success is defined as the upper 95th confidence interval of the event rate is less than 65%

3 Month Efficacy: Change in IPSS at 3 months

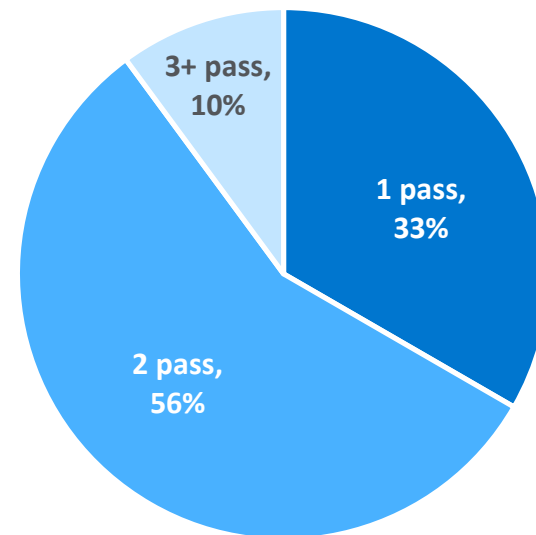
- Compared to an OPC of 11 points, 99% power
- Success is defined as the lower 95th confidence interval of the change in IPSS is greater than 11

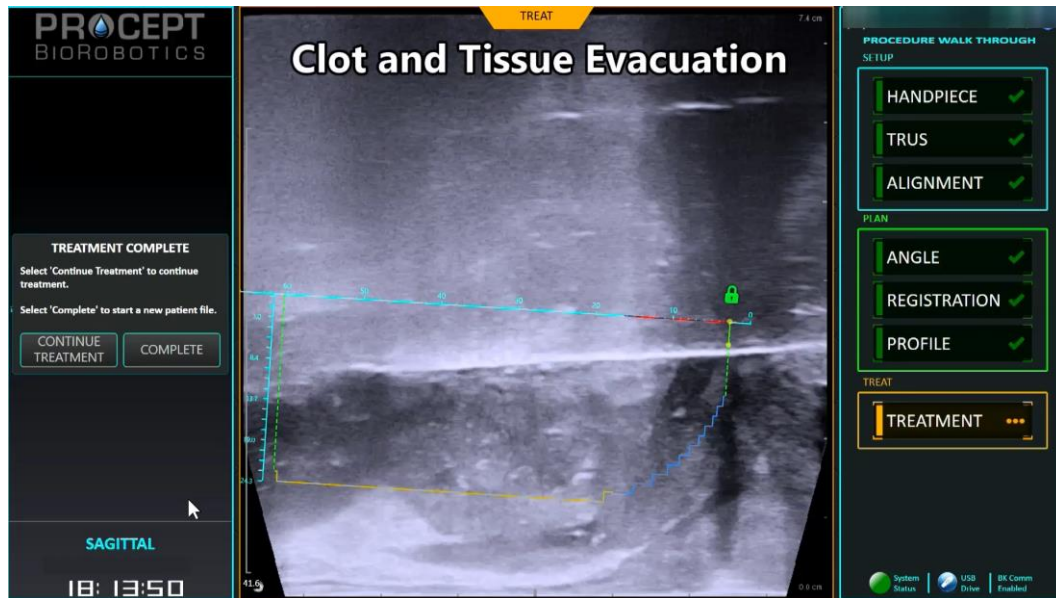
Baseline Patient Demographics

	Aquablation (n=101)	
	Mean	SD
Age	67.5	6.6
BMI	28.4	4.2
IPSS	23.2	6.3
Prostate volume, cc	107.4	22.1
Middle Lobe, %	83.2	
Intravesical comp., % of ML	96.4	
Intravesical protrusion, cm	1.8	0.8
PSA, ng/mL	7.1	5.9
Voided volume, cc	170	66
PVR, cc	131	125
Qmax, cc/sec	8.7	3.4
MSHQ-EjD, range 0-15	8.1	3.9

Characteristics	Results
Spinal: General anesthesia	82% : 18%
TRUS insertion to catheter placement	55 ± 19 minutes
Handpiece in/out time	37 ± 37 minutes
Aquablation resection time	8 ± 3 minutes
Average number of passes	1.8 passes

Number of Aquablation Treatment Passes per Case





Post-Operative Management

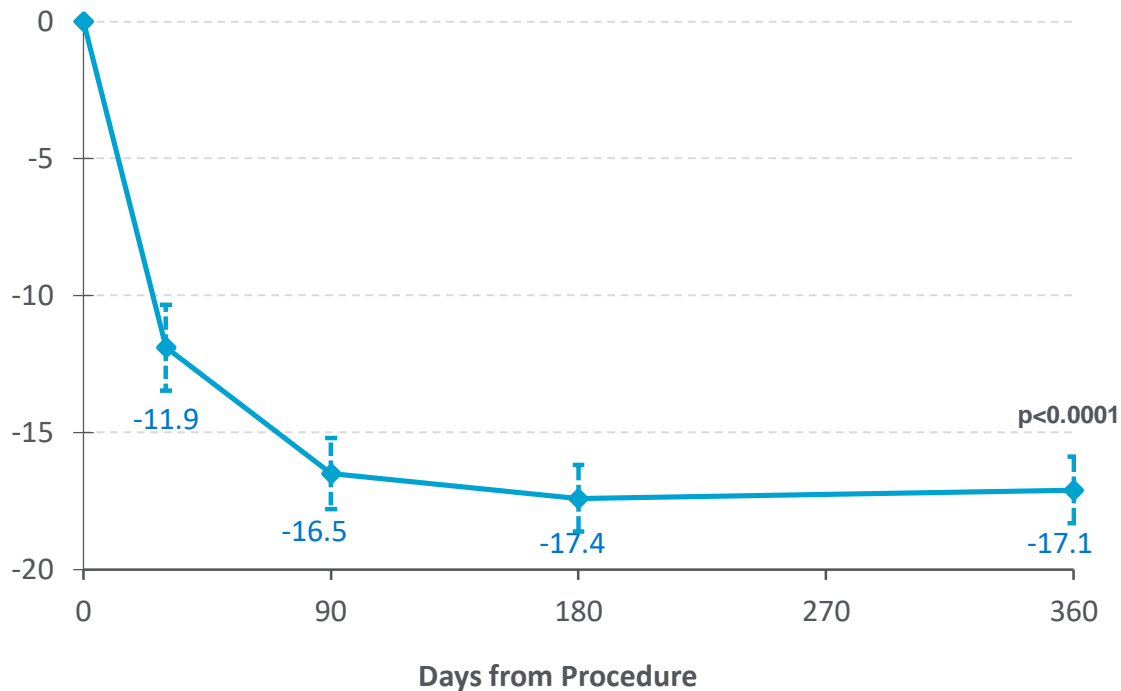
Bladder neck traction (n)	98
Intra-prostatic catheter placement (n)	3
Average length of traction (hours)	18 ± 10
Catheter length of duration (hours)	94 ± 84
Length of stay (days)	1.6 ± 1
Procedure performed without cautery (%)	100%



Catheter Tensioning Device

Change in IPSS at 12 Months

Change Score (IPSS)

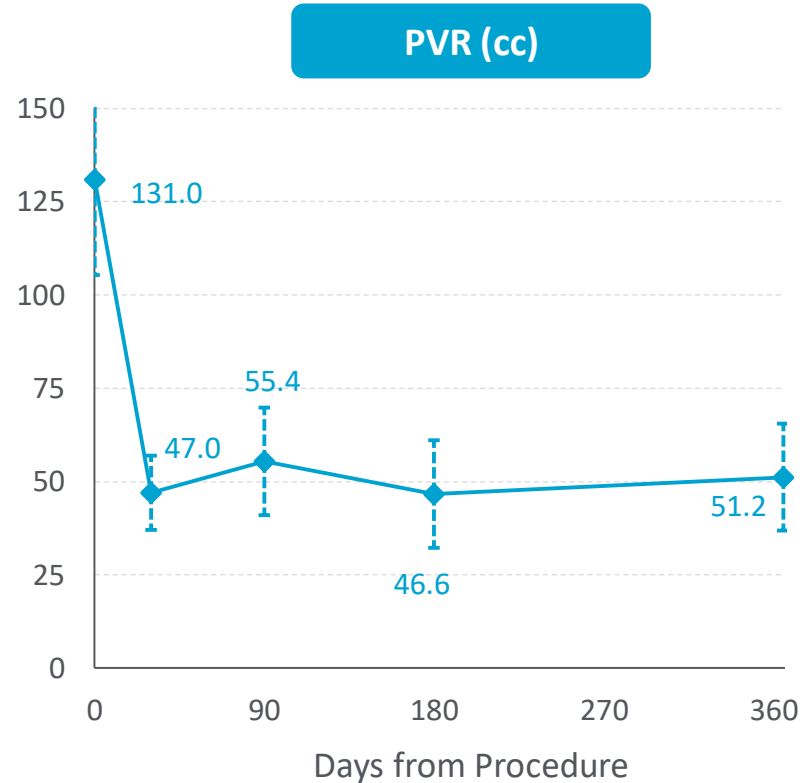
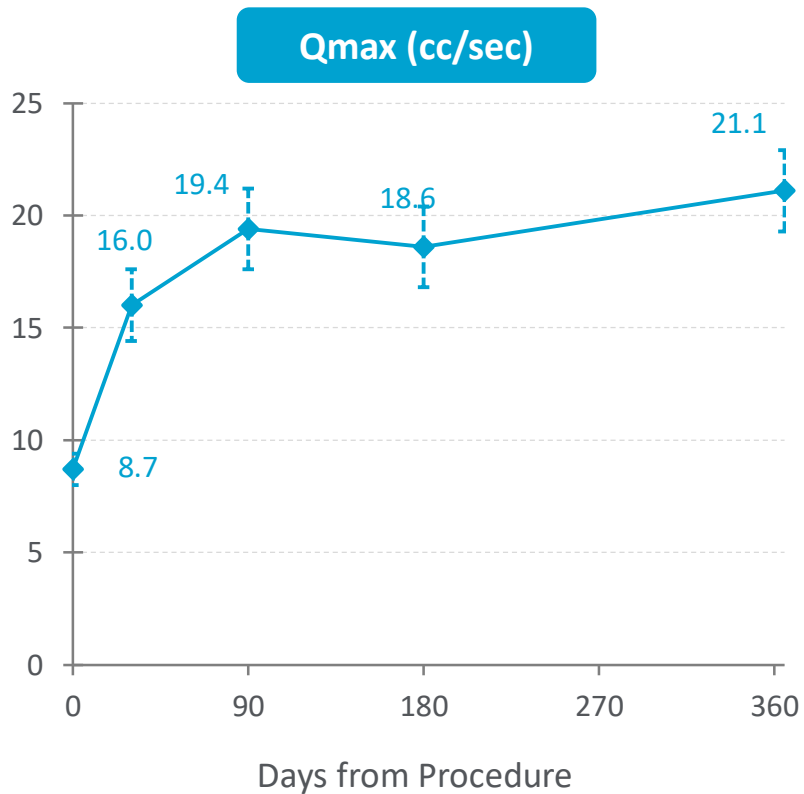


	Baseline	12 months
IPSS Score	23.2 ± 6.3	6.2 ± 5.0

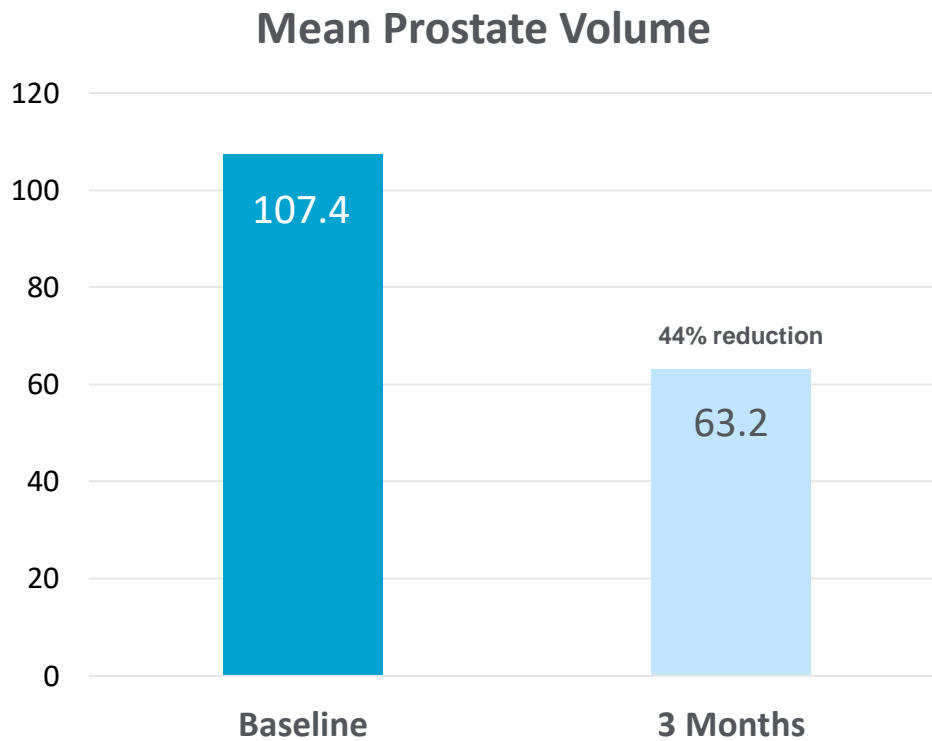
- 9 sites with no prior experience
- 7 sites with median = 4 cases experience

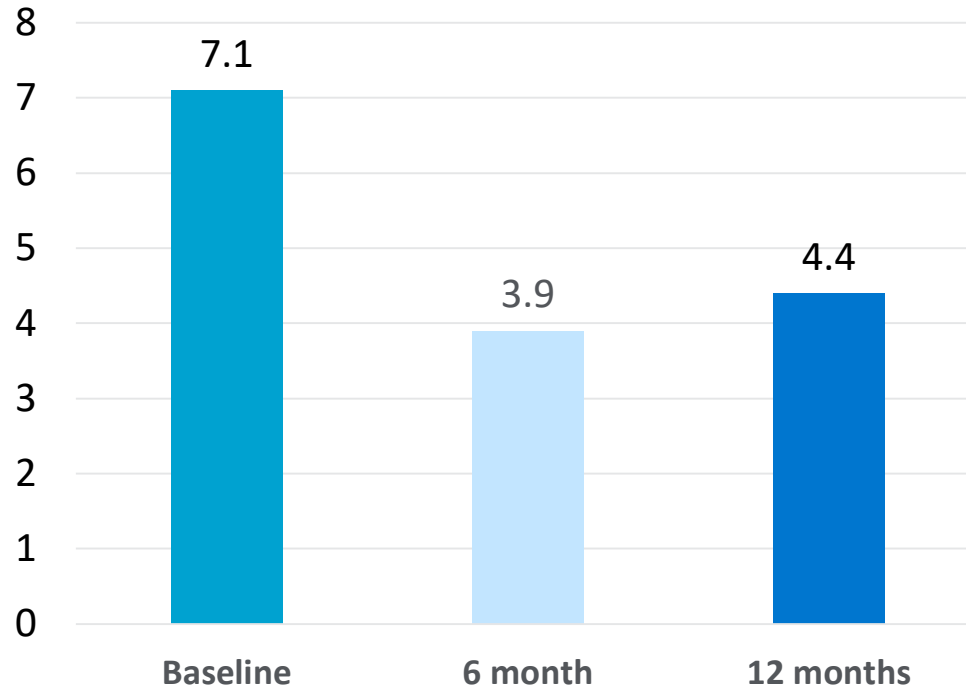
Data reported as mean (95% CI)

Uroflow – Qmax & PVR

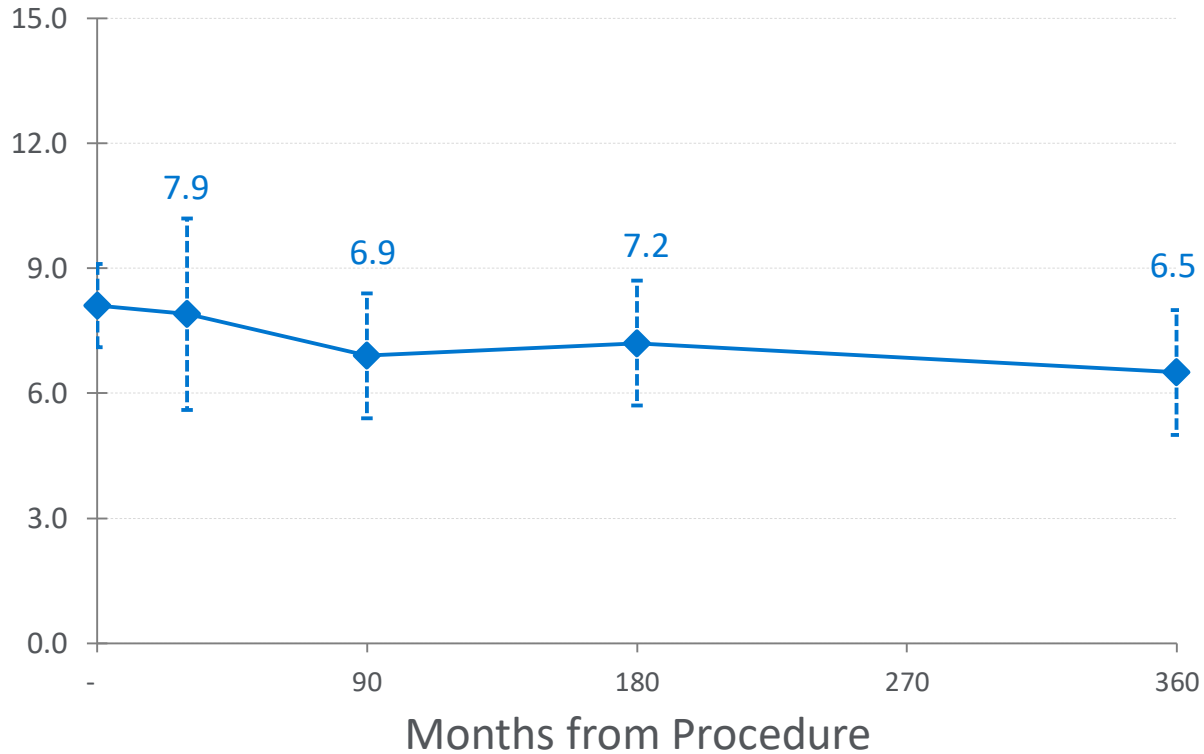


Data reported as mean (95% CI)





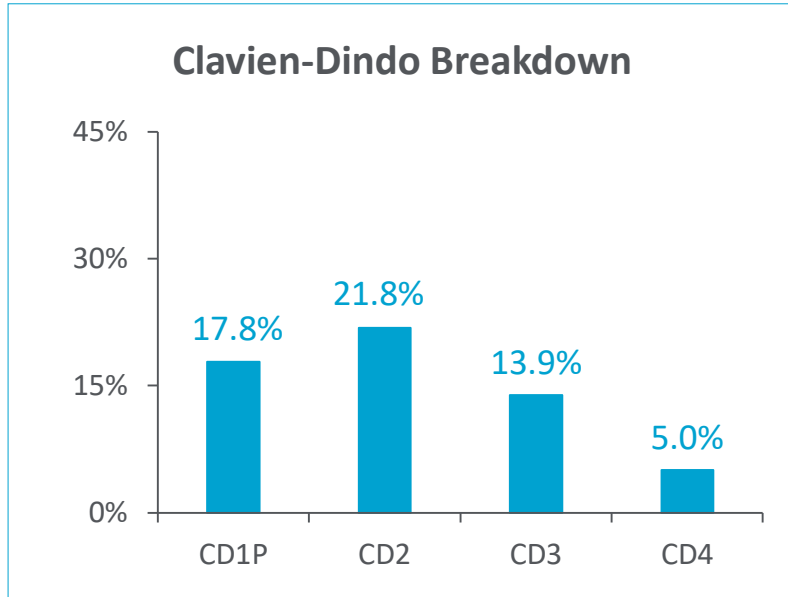
12M Ejaculatory Function (MSHQ)



MSHQ-EjD

- 3 questions
- Max score 15
- Self-reported

Data reported as mean (95% CI)
Men who were sexually active at both baseline and follow up visit



Other Notable Safety Rates:

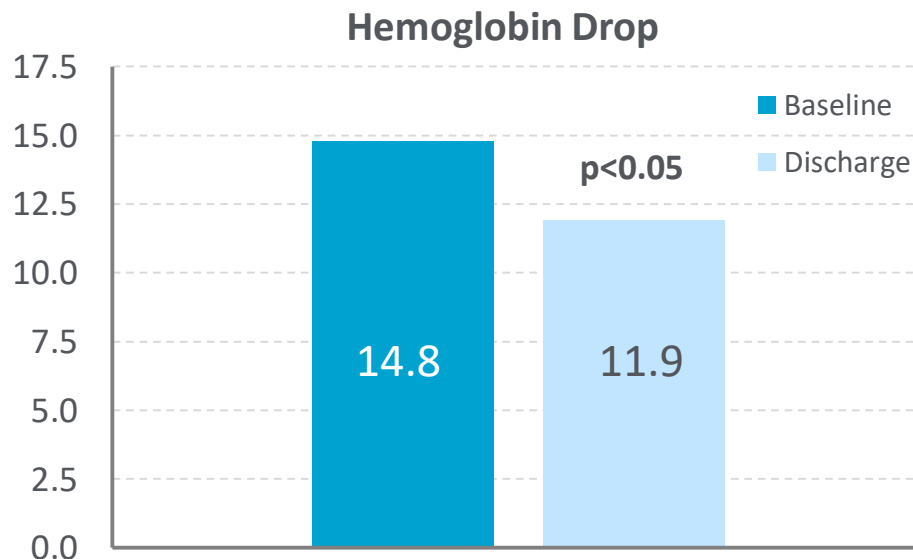
- De novo Incontinence = 2%
- Sexual dysfunction:
 - Erectile dysfunction = 0%
 - Ejaculatory dysfunction* = 19%
 - Retreatment for BPH symptoms = 0%

* Defined as absence of ejaculate; Sexually active men only

1. CD grade definitions: CD1P (ejaculatory dysfunction, incontinence), CD2 (requiring pharmacological treatment, blood transfusions), CD3 (endoscopic or surgical interventions), CD4 (complications requiring ICU management)

Major Bleeding Events

Major Events	Prior to Discharge	Discharge to Day 15	Day 16 to 1 Month	> 1 Month
Transfusion	6	2	2	0
Return to OR	1	2	1	0



- Aquablation is a transurethral surgical alternative for larger prostates (80-150cc) with statistically significant reduction in IPSS and improvements in Qmax.
- Despite increased prostate size in WATER II, hemostasis was achieved without cautery in all cases.
- Aquablation demonstrates short learning curve:
 - *9 of the 16 sites with no prior experience*
- Combination of robotics and image guidance significantly reduces tissue removal time which is independent of prostate size
- Aquablation demonstrates durable 1 year results with:
 - Sustained decrease in symptom scores and increase in flow rates
 - Preservation of antegrade ejaculation
 - No reinterventions

1. Pariser JJ, Pearce SM, Patel SG, Bales GT. National trends of simple prostatectomy for benign prostatic hyperplasia with an analysis of risk factors for adverse perioperative outcomes. *Urology* 2015; 86:721–6
2. Gratzke C, Schlenker B, Seitz M et al. Complications and early postoperative outcome after open prostatectomy in patients with benign prostatic enlargement: results of a prospective multicenter study. *J Urol* 2007; 177:1419–22
3. Lanchon C, Fiard G, Long JA et al. Open prostatectomy versus 180-W XPS GreenLight laser vaporization: long-term functional outcome for prostatic adenomas >80 g. *Prog Urol* 2018; 28:180–7
4. Valdivieso R, Hueber P-A, Bruyere F et al. Multicenter international experience of 180W LBO laser photo-vaporization in men with extremely large prostates (prostate volume >200cc): is there a size limit? *Br J Urol* 2018; 17: e191
5. Krambeck AE, Handa SE, Lingeman JE. Holmium laser enucleation of the prostate for prostates larger than 175 grams. *J Endourol* 2010; 24:433–7

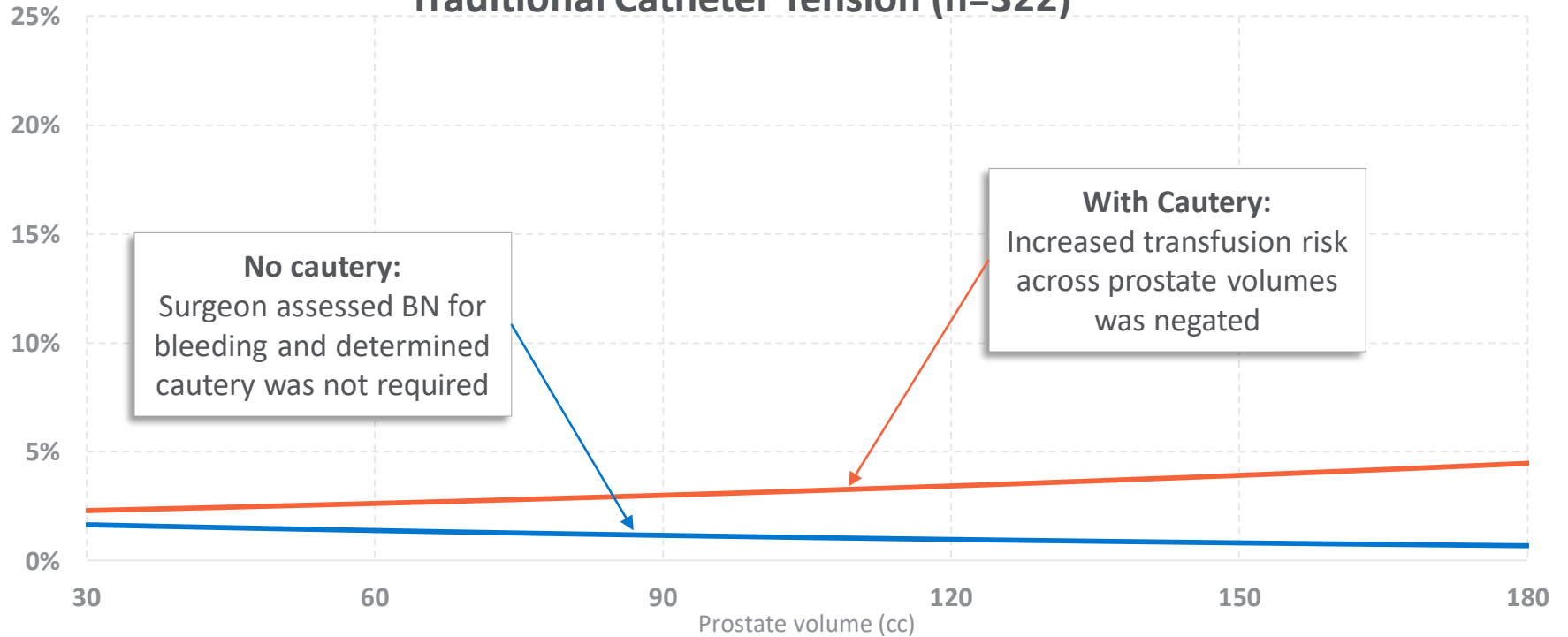
Aquablation Hemostasis Analysis

801 Aquablation Procedures with Various Hemostasis Methods

- 801 Aquablation procedures (average prostate volume 67cc ± 33cc, range 20-280cc)
 - All clinical trial cases that utilized the current robot generation
 - Three large commercial centers (consecutive patients)
- 39 transfusions (4.9%)
- Hemostasis characteristics analyzed:
 - Traction force
 1. Firm traction (>1.3 pounds-force [lbf])
 2. Traditional Catheter Tension (adhere to leg, gauze knot, no traction)
 - Cautery
 1. Selective focal bladder neck (BN) cautery performed after Aquablation
 2. No cautery utilized

Selective focal bladder-neck cauterization with traditional catheter tension reduced transfusion rates to 2% across all prostates volumes

Traditional Catheter Tension (n=322)



No cautery:
Surgeon assessed BN for bleeding and determined cautery was not required

With Cautery:
Increased transfusion risk across prostate volumes was negated

Complication	Events	Patients, n	Rate, %
Clavien–Dindo grade 1			
Bleeding	6	6	5.9
Cardiac	1	1	1.0
Dysuria	8	8	7.9
Gastrointestinal symptoms	6	4	4.0
Meatal stenosis	1	1	1.0
Other	11	7	6.9
Pain	7	5	5.0
Scrotal oedema	3	3	3.0
Sexual	1	1	1.0
Urinary frequency	1	1	1.0
Urinary incontinence	7	7	6.9
Urinary retention	2	2	2.0
Urinary urgency	3	2	2.0
Total	57	31	30.7
Clavien–Dindo grade 2			
Bleeding	8	6	5.9
Cardiac	1	1	1.0
Dysuria	1	1	1.0
Infection	2	2	2.0
Other	2	2	2.0
Pain	1	1	1.0
Urinary frequency	1	1	1.0
UTI	4	4	4.0
Urinary urgency	1	1	1.0
Total	21	19	18.8
Clavien–Dindo grade 3			
Bleeding	7	6	5.9
Dysuria	1	1	1.0
Meatal stenosis	2	2	2.0
Urethral stricture	1	1	1.0
Urinary incontinence	1	1	1.0
Total	12	11	10.9
Clavien–Dindo grade 4			
Bleeding	2	2	2.0
Cardiac	2	2	2.0
Cerebrovascular accident	1	1	1.0
Multisystem organ failure	1	1	1.0
Total	6	5	5.0