Prostate Cryosurgery using Cryocare CS® Technology
AUA 2008 Best Practice Statement Summary

**Primary Treatment**

- **Patient Selection**
  - Organ confined
  - Any grade
  - Negative metastatic evaluation
  - Prior TUR is relative contraindication

- **BDFS (5 years)**
  - Low risk: 65-92%
  - Moderate risk: 69-89%
  - High risk: 48-91%

- **Negative Biopsy**
  - 87-98%

- **Complications**
  - Retention: 1-2 weeks
  - Swelling: 1-2 weeks
  - Numbness: 2-4 months
  - Fistula: 0.05%
  - Incontinence: 1-8%
  - ED (at 12 months): 49-93%
  - Sloughing (2000 data): 0-15%

**Salvage Treatment**

- **Patient Selection**
  - Organ confined with positive biopsy confirming disease in prostate
  - PSA < 10 ng/mL (Optimally ≤ 4 ng/mL)
  - Long PSA doubling time
  - No evidence of seminal vesicle invasion
  - Life expectancy > 10 years
  - Negative metastatic evaluation

- **BDFS (Up to 5 years)**
  - 34-86%

- **Negative Biopsy**
  - 93-94%

- **Complications**
  - Fistula: 0-3%
  - Incontinence (current studies): <10%
  - ED: >80%
  - Sloughing: 5-10%


This information is intended to provide general education for surgeons who have been trained to perform cryosurgery. Consult System Operator’s Manual and Component DFUs for complete instructions.

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Markings on Handle Represent Ablative Ice Lengths

<table>
<thead>
<tr>
<th>Setting</th>
<th>-40°C</th>
<th>-20°C</th>
<th>0°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 cm</td>
<td>1.5</td>
<td>1.9</td>
<td>3.2</td>
</tr>
<tr>
<td>2.5 cm</td>
<td>2.5</td>
<td>3.0</td>
<td>4.3</td>
</tr>
<tr>
<td>3.0 cm</td>
<td>3.0</td>
<td>3.6</td>
<td>5.0</td>
</tr>
<tr>
<td>4.0 cm</td>
<td>4.0</td>
<td>4.7</td>
<td>5.7</td>
</tr>
<tr>
<td>5.0 cm</td>
<td>5.0</td>
<td>5.5</td>
<td>6.8</td>
</tr>
</tbody>
</table>

The isotherms listed above represent measurements collected using gelatin formula which approximates performance (± 5mm) in soft tissue at 100% gas for 10 minutes.

See CVA-2400 Directions for Use for complete isotherm information.
Ultrasound Basics

- Longitudinally oriented side fire linear array transducer displays prostate in long axis
- Probe is rotated clockwise and counterclockwise to see left and right of midline

Longitudinal sagittal view at midline
Normal Ultrasound Anatomy

Layers of Rectal Wall

- Peri-rectal/periprostatic fat
- Hypo-echoic interface of mucosa and sub-mucosa
- Balloon-mucosa interface
- Muscularis propria
- Sub-mucosa
Step 1: Set up and position ultrasound probe

- Foley Catheter placement, fill bladder with saline
- Align ultrasound probe, center image, assure that plane of urethra and plane of transducer is parallel
- Urethra stays on centerline as you move ultrasound cradle from base to apex
- Measure volume (height, width, length)
Alignment of Ultrasound Probe

Keep Urethra on Centerline
Prostate Cryosurgery Technique

Step 2: CryoGuide® Planning

- Find the widest transverse image of the prostate and capture the image
- Outline the prostate staying outside capsule for high risk disease where capsular disease is suspected
- Outline urethra, large margin in salvage cases
- Outline rectal wall
Capture Image

Capture live transrectal ultrasound image of the prostate on CryoGuide® screen
CryoGuide® Planning

Outline Prostate, Urethra and Rectal Wall

Captured Image
V-Ice length appears in the Placement Matrix.
Cryoprobe Placement Logic

**Cryoprobes should be placed:**

- ≤ 1 cm from the capsule
- ≤ 2 cm apart
- > 0.5 cm from rectal wall
- > 0.5 cm from urethral wall

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Cryoprobe and TempProbe® sensor placement can be verified with CryoGuide® measurement function.

Key measurements can be checked on screen.

Cryoprobe and TempProbe® sensor placement can be verified with CryoGuide® measurement function.
Probe Placement Sequence

*Pretest cryoprobes before placement*

Anterior probes anchor the gland, then work posterior to anterior to improve access

- Cryoprobes 1 & 2 placed anterior
- ANT, ES, APEX, DEN TempProbe® sensors placed midline
- Cryoprobes 5 & 6 placed posterior medial
- Cryoprobes 3 & 4 placed posterior lateral
- RNVB, LNVB TempProbe sensors placed lateral
- **URETHRAL WARMING CATHETER** placed, after cystoscopy confirms no probes have compromised the urethra
Cryoprobe Freeze Sequence

- Activate cryoprobes anterior to posterior
  - Anterior (1+2) ➞ Posterolateral (3+4) ➞ Posteromedial (5+6)
- Freeze anterior cryoprobes 1 & 2 until ANT TempProbe® sensor ideally reaches the target temperature or ice line approaches probes 3 & 4
Cryoprobe Freeze Sequence

- Freeze cryoprobe 3 & 4 until NVB TempProbe® Sensors reach within 15°C of target temperatures.
- Freeze cryoprobe 5 & 6 until DEN TempProbe Sensor reaches target temperature. (Monitor rectal wall via ultrasound to ensure ice does not expand to rectal wall using sagittal (longitudinal) view!)
Prostate Cryo: Freeze Progression

Sagittal image at completion
Final Steps

- Active thaw until all temperatures > 0°C
- Remove probes
- Perineal pressure for hemostasis
- Rectal exam: confirm no ice in rectum
- Urethral warmer, passively thaw at least 20 min
- Can move warmer to Recovery Room
- Foley catheter or S-P tube (your choice)