

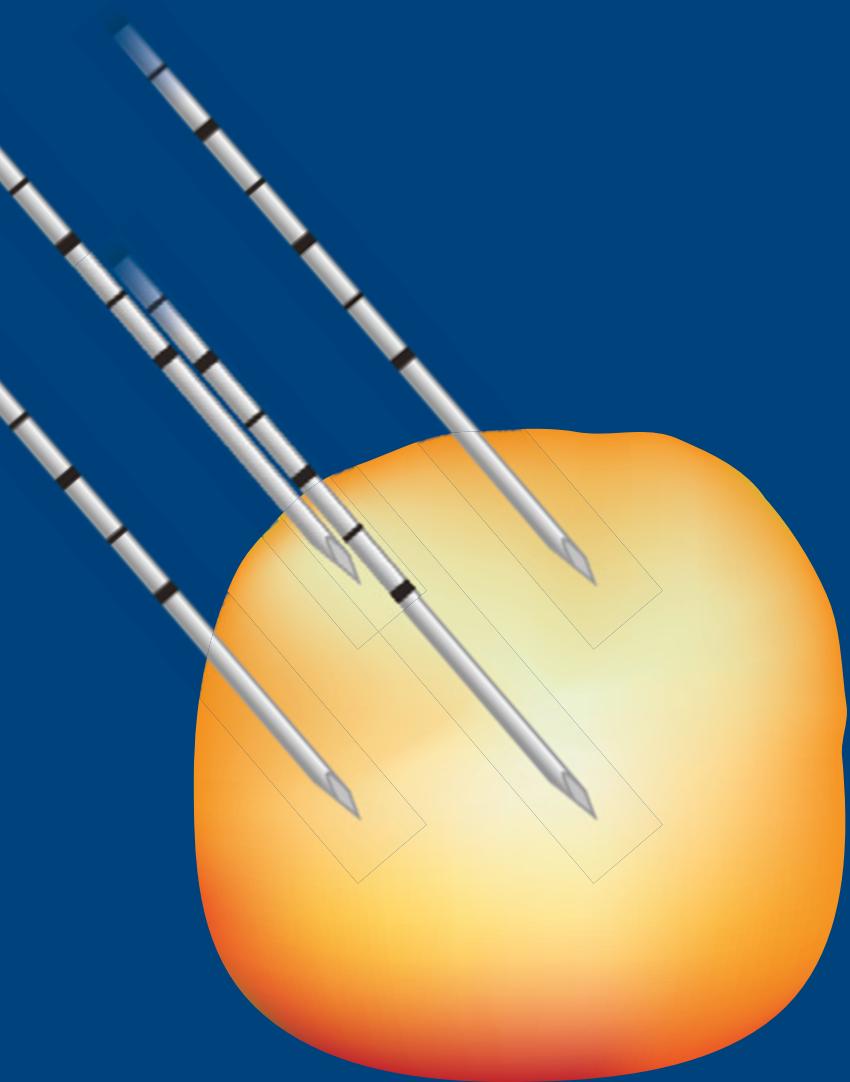


CRYOABLATION

Treatment Planning



CREATING ICE



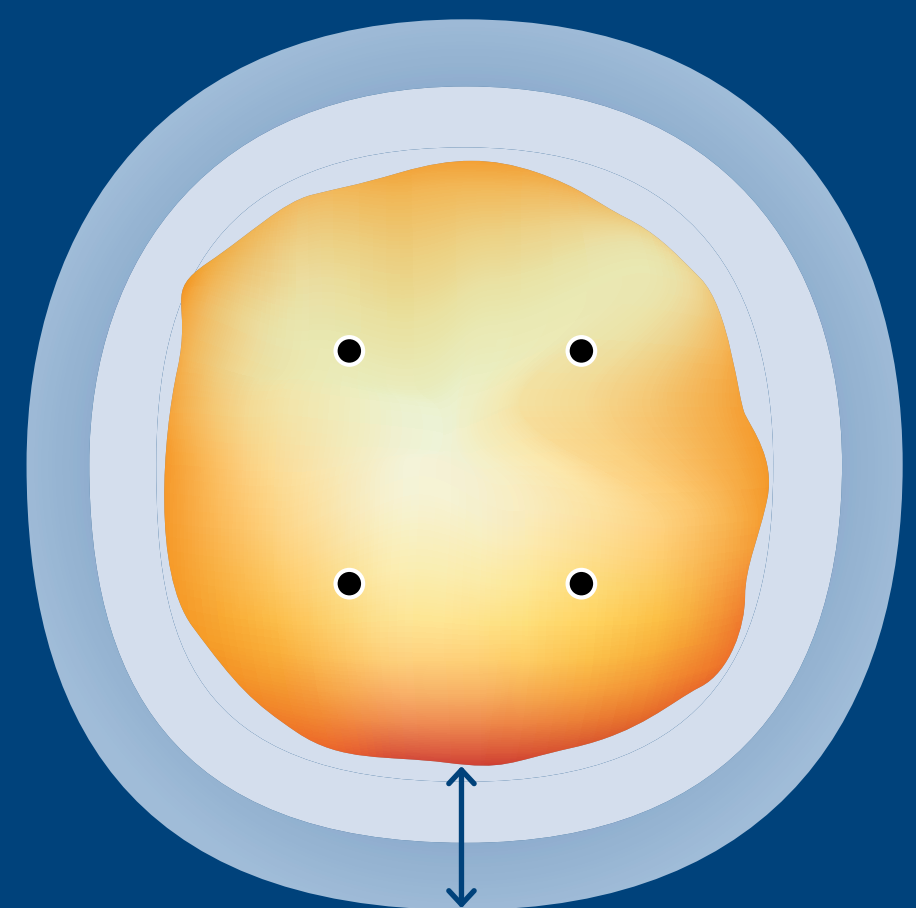
Iceball dimensions presented in this guide are provided to assist clinicians in selecting the cryoablation needle(s) and needle placement to appropriately ablate the target area. To optimize appropriate margins, needles should be placed to create lethal ice beyond the perimeter of the target tissue 5-10mm depending on tissue type.

To optimize tumor coverage and provide appropriate margins, use of multiple needles is recommended. Multiple needles placed in an adjacent configuration will typically create a large, coalesced iceball.

In clinical use, patient anatomy, tissue and tumor properties affect needle placement. Needle type, number of needles placed, tissue and tumor characteristics, surrounding vasculature and treatment duration affect iceball size.

Intraoperative imaging is important to monitor iceball formation throughout the procedure and is key to a successful cryoablation.

Isotherms represented in this guide were conducted in a laboratory setting in 37°C temperature controlled gel. Isotherm measurements were made following two 10-minute freeze cycles separated by a 5-minute passive thaw on each needle type and size.



**Extend ice
5-10mm beyond
tumor edge**

CRYOABLATION ISOTHERM DATA 37°C

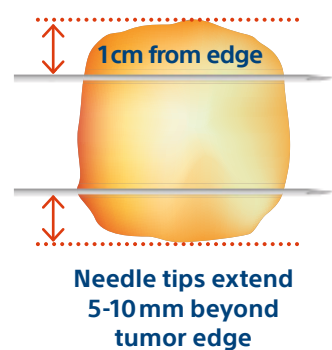
NEEDLE PLANNING GUIDE

- Choose needle type and number of needles to surround the tumor with lethal ice based on application, tumor location and tumor size

NOTE:
0°C is the visible edge
of the iceball and is not
lethal

- Multiple needles placed in an adjacent configuration will typically create a large, coalesced iceball

NOTE:
Needles spaced too far apart risk areas of non-lethal ice

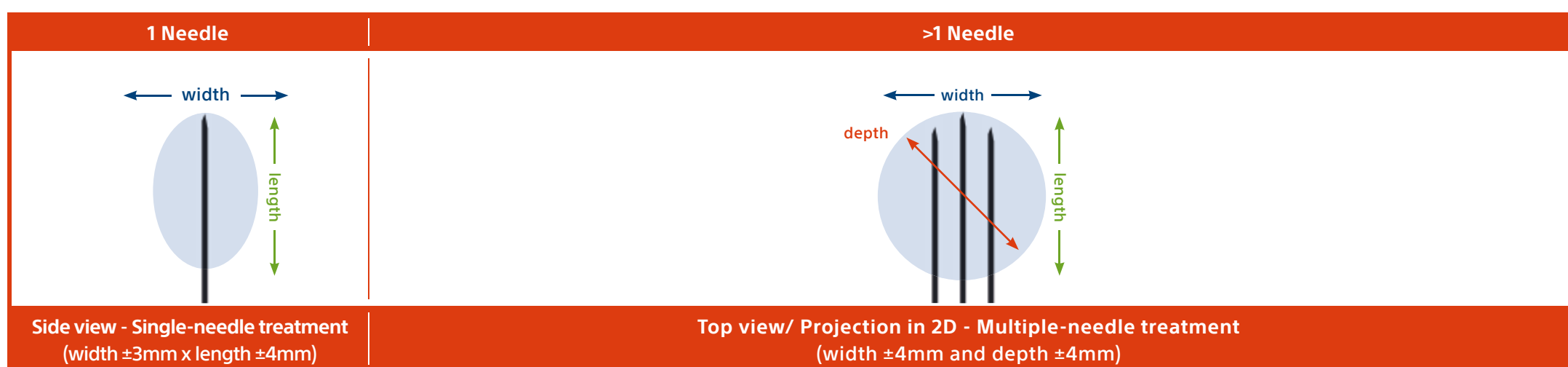
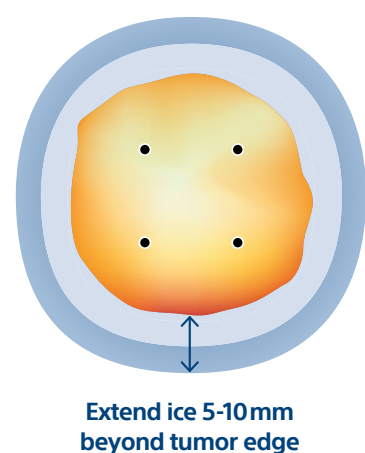


- Place needles no further than 1cm from the tumor's edge

- Extend the needle tip beyond the distal edge of the tumor to ensure appropriate coverage with lethal ice

NOTE:
-20°C ice extends less than 5 mm beyond the needle tip

- Use imaging to confirm iceball completely engulfs the tumor with a 5-10mm margin depending on tissue type



IceSeed™ 1.5 Family

Optimal spacing: 1.0 cm

IceSeed™ 1.5 Straight Needle: H7493962232010
IceSeed™ 1.5 90° Needle: H7493962332020

Shaft Length: 17.5cm
Shaft Diameter: 1.5mm / 17G

IceSphere™ 1.5 Family

Optimal spacing: 1.0–1.5 cm

IceSphere™ 1.5 Straight Needle: H7493962535580
IceSphere™ 1.5 90° S Needle: FPRPR3560
IceSphere™ 1.5 90° Needle: H7493962735610
IceSphere™ 1.5 CX 90° Needle*: H7493961535730

*Track Ablation:
Radial width 2.1-2.5mm; Length 14mm

Shaft Length: S10cm / 17.5cm
Shaft Diameter: 1.5mm / 17G

IceRod™ 1.5 Family

Optimal spacing: 1.0–1.5 cm

IceRod™ 1.5 PLUS 90° Needle: FPRPR3508
IceRod™ 1.5 iThaw Needle: H7493964940090
IceRod™ 1.5 90° CX Needle*: H7493961435330

*Track Ablation:
Radial width 2.3mm; Length 30mm

Shaft Length: 17.5cm
Shaft Diameter: 1.5mm / 17G

IcePearl™ 2.1 CX Family

Optimal spacing: 1.0–1.5 cm

IcePearl™ 2.1 CX Straight Needle*: H7493961836030
IcePearl™ 2.1 CX 90° Needle*: H7493961636010
IcePearl™ 2.1 CX L 90° Needle*: H7493962036170

*Track Ablation:
Radial width 2.1mm: Length 13mm

Shaft Length: 17.5cm / L23cm
Shaft Diameter: 2.1mm / 14G

IceFORCE™ 2.1 CX Family

Optimal spacing: 1.5–2.0 cm

IceFORCE™ 2.1 CX Straight Needle*: H7493961936040
IceFORCE™ 2.1 CX 90° Needle*: H7493961736020
IceFORCE™ 2.1 CX L 90° Needle*: H7493962136180

*Track Ablation:
Radial width 2.5mm: Length 29mm

Shaft Length: 17.5cm / L23cm Shaft
Diameter: 2.1mm / 14G

ORDERING INFORMATION

CRYOABLATION PORTFOLIO OF NEEDLES

The following chart lists 90° and straight needles.
Please contact your representative or customer service for
MRI compatible needles, needle kits and cryoablation systems.

Cryoablation Needles	REF	Shaft Length / Gauge	Track Ablation Radial Width / Length
IceSeed™ 1.5 90°	H7493962332020	17.5cm / 17G	
IceSeed™ 1.5 Straight	H7493962232010	17.5cm / 17G	
IceSphere™ 1.5 90°	FPRPR3560	17.5cm / 17G	
IceSphere™ 1.5 S 90°	H7493962735610	10cm / 17G	
IceSphere™ 1.5 CX 90°	H7493961535730	17.5cm / 17G	2.1-2.5mm / 14mm
IceSphere™ 1.5 Straight	H7493962535580	17.5cm / 17G	
IceRod™ 1.5 PLUS 90°	FPRPR3508	17.5cm / 17G	
IceRod™ 1.5 CX 90°	H7493961435330	17.5cm / 17G	2.3mm / 30mm
IceRod™ 1.5 i-Thaw® Straight	H7493964940090	17.5cm / 17G	
IcePearl™ 2.1 CX 90°	H7493961636010	17.5cm / 14G	2.1mm / 13mm
IcePearl™ 2.1 CX L 90°	H7493962036170	23cm / 14G	2.1mm / 13mm
IcePearl™ 2.1 CX Straight	H7493961836030	17.5cm / 14G	2.1mm / 13mm
IceFORCE™ 2.1 CX 90°	H7493961736020	17.5cm / 14G	2.5mm / 29mm
IceFORCE™ 2.1 CX L 90°	H7493962136180	23cm / 14G	2.5mm / 29mm
IceFORCE™ 2.1 CX Straight	H7493961936040	17.5cm / 14G	2.5mm / 29mm