

# Radiation Therapy

## 50 Year History

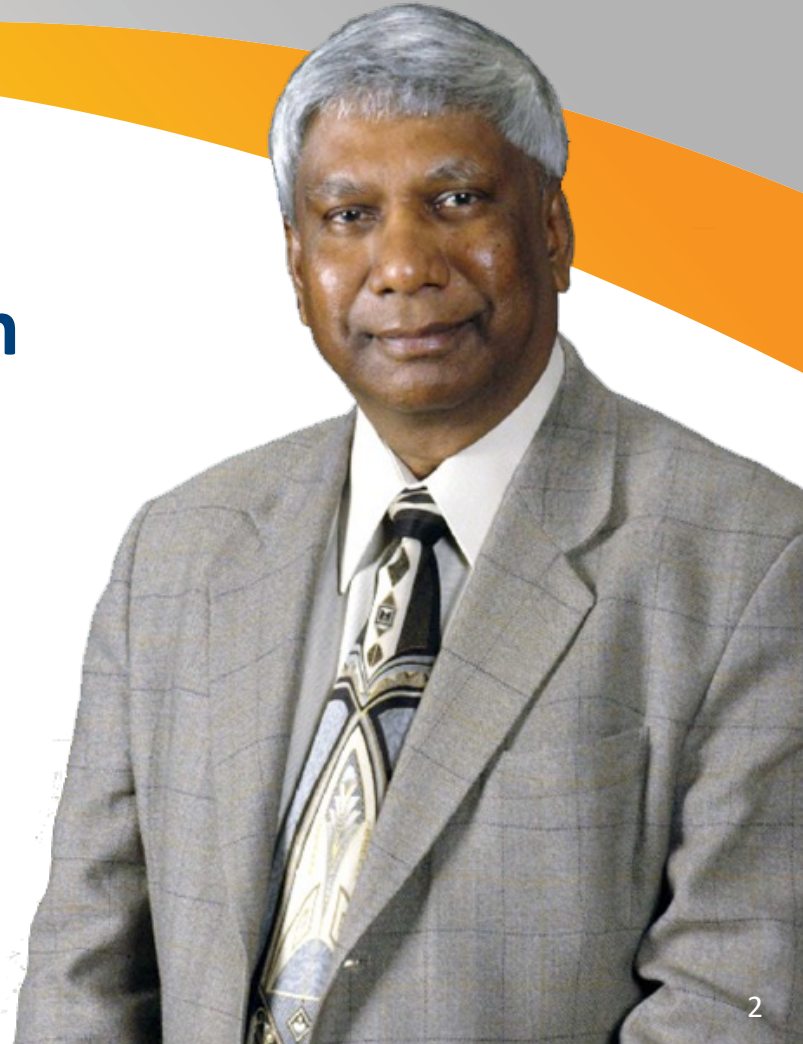
*Past, Present, and Future*



**Krishnan Suthanthiran**

*krish@teambest.com*

**Founder and President  
of TeamBest Global  
Companies**





# TeamBest Global Companies

*Best* medical international

*TeamBest* ASIA

*Best* Cyclotron Systems

*Best* Particle Therapy

*Best* Theratronics

*Best* medical canada

*Best* medical italy

*Best* ABT Molecular Imaging

*Best* vascular



**Best Cure**  
FOUNDATION



**HUESTIS**MEDICAL  
making it affordable™

*Best* nomos™

*Best* Dosimetry Services

**CNMC+** *Best* NDT  
A TeamBest Company



*Best* Automation & Robotics



# Best Cure Foundation



[www.bestcure.md](http://www.bestcure.md)



# 3E—Education, Empowerment and Equality



[www.bestcure.md](http://www.bestcure.md)



# Proud Indian Party



[www.proudindian.org](http://www.proudindian.org)



# International Society for Surgery & Surgical Oncology



[www.issso.org](http://www.issso.org)





# International Society for Breast Surgeons



[www.isbs.ca](http://www.isbs.ca)



# International Society for Radiation Medicine & Molecular Imaging



[www.isrmmi.org](http://www.isrmmi.org)



# International Society for Radiology and Imaging



[www.isri.ca](http://www.isri.ca)



# International Society for Therapeutic Radiology & Oncology



[www.istro.net](http://www.istro.net)



# International Society for Ultrasound Imaging



[www.isusi.org](http://www.isusi.org)



# Kitsault Energy



[www.kitsaultenergy.com](http://www.kitsaultenergy.com)



# *Best*<sup>TM</sup> *medical international*

A TEAMBEST GLOBAL COMPANY

[www.bestmedical.com](http://www.bestmedical.com)



# *Best*<sup>TM</sup> *Cyclotron Systems*

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[www.bestcyclotron.com](http://www.bestcyclotron.com)





# *Best*<sup>TM</sup> *Particle Therapy*

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[www.bestcyclotron.com/particletherapy](http://www.bestcyclotron.com/particletherapy)



# *Best*<sup>TM</sup> *Theratronics*

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[www.theratronics.ca](http://www.theratronics.ca)



# *Best*<sup>TM</sup> *medical canada*

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[www.bestmedicalcanada.com](http://www.bestmedicalcanada.com)



# *Best*<sup>TM</sup> *medical italy*

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[www.teambest.com](http://www.teambest.com)



# *Best*<sup>TM</sup> **ABT Molecular Imaging**

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[www.bestabt.com](http://www.bestabt.com)



# *Best*<sup>TM</sup> *vascular*

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# *Best*<sup>TM</sup> *Automation & Robotics*

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[www.teambestautomation.com](http://www.teambestautomation.com)





# *Best*<sup>™</sup> *Dosimetry Services*

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[www.bestdosimetry.com](http://www.bestdosimetry.com)



# Best<sup>TM</sup> nomos<sup>®</sup>

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[www.nomos.com](http://www.nomos.com)



# TeamBest™ ASIA

A TEAMBEST GLOBAL COMPANY

[www.teambest.in](http://www.teambest.in)



# Best™ NDT

A TEAMBEST GLOBAL COMPANY

[www.bestndt.net](http://www.bestndt.net)





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[www.cnmcco.com](http://www.cnmcco.com)



# HUESTISMEDICAL

making it affordable™

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# arplay medical

A TEAMBEST GLOBAL COMPANY

[www.arplay.com](http://www.arplay.com)



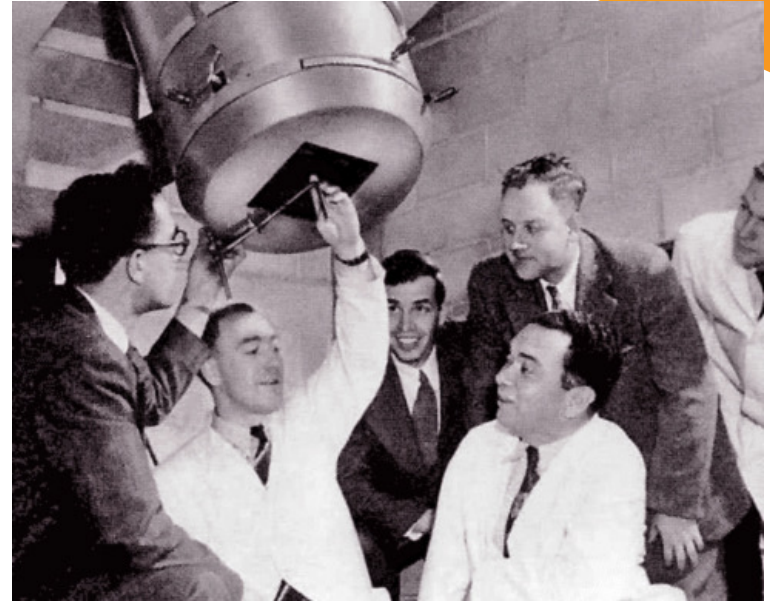
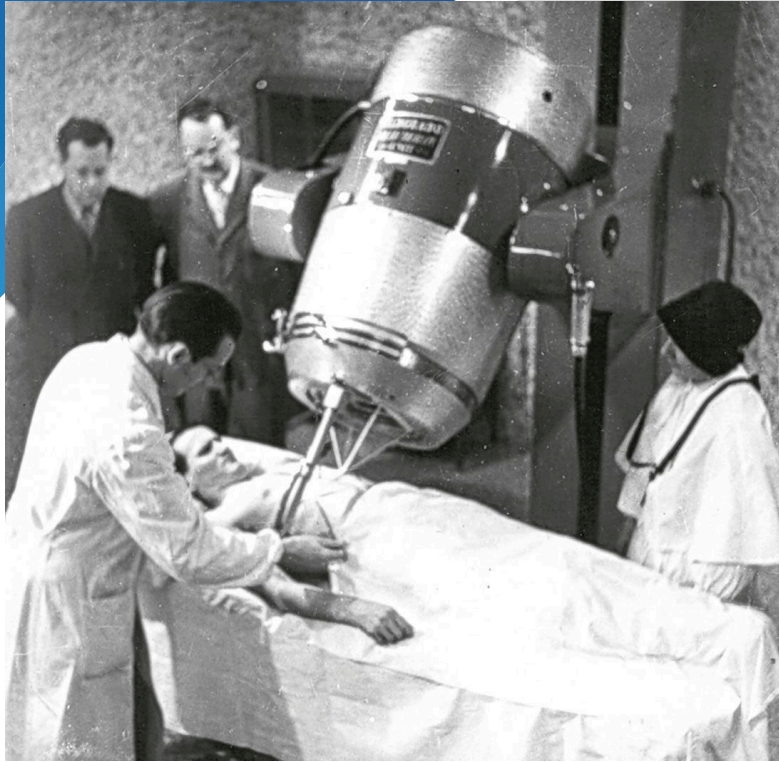


**Best**<sup>®</sup> **entertainment**  
*for everyone*

[www.bestentertainment.ca](http://www.bestentertainment.ca)







**The Eldorado A at Victoria Hospital  
in London Ontario in 1951.**

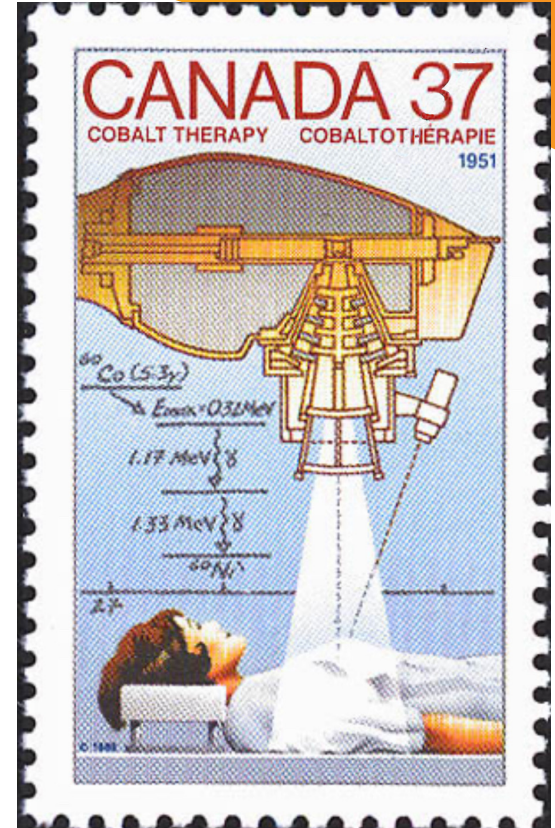
# Evolution of Radiation Therapy – Cobalt-60

Cobalt 60 widely used for conventional RT in most of the world.

But..

Has lacked the required technical R&D to facilitate IMRT/IGRT...

# UNTIL NOW





## Best GammaBeam™ 300-100 CM Equinox™ Teletherapy System with Avanza 6D Patient Positioning Table

The **GammaBeam™ 300-100 CM Equinox™** is an evolution of the Theratron line of treatment devices. The advanced design provides freedom in treatment planning and can interface to all of the major record/verify systems to allow for rapid treatment parameter loading, treatment set-up verification and the recording of delivery.



## INTRACAVITARY AND INTERSTITIAL RADIATION THERAPY IN THE MANAGEMENT OF NASOPHARYNGEAL CANCERS

Ulrich K. Henschke MD, PhD 420 East 66th Street New York, N.Y. 10021

Invited paper and exhibit presented at the XII International Congress of Radiology in Tokyo, Japan, October 6-11, 1969. Based on clinical and experimental work carried out in cooperation with Basil S. Hilaris MD, John S. Lewis MD, David G. Mahan BA, and Felix W. Mick and supported in part by PHS grant CS 9369.

### INTRACAVITARY APPLICATIONS

We have used intracavitary applications routinely in combination with external supervoltage radiation-therapy for the primary treatment of all nasopharyngeal cancers.

As in the treatment of cancer of the uterine cervix, this combination of intracavitary and external radiation results in a better dose distribution and permits a higher tumor dose. And only with the help of an intracavitary applicator is it possible to deliver to the cancerbearing portions of the nasopharynx a higher dose than to the normal portions.

Intracavitary applications have been greatly facilitated by the remote afterloader, which we first described in 1964. It has three small cobalt-60 sources, each one millimeter in diameter and 500 to 1000 millicuries. During the treatment, the patient remains in a well shielded room, and the sources are inserted by remote control from a separate control room into the previously positioned nasopharynx applicator.

For the patient, the remote afterloader provides greater comfort due to the short treatment times of 10 to 20 minutes. For the physicians and the technicians, it completely eliminates radiation exposure.

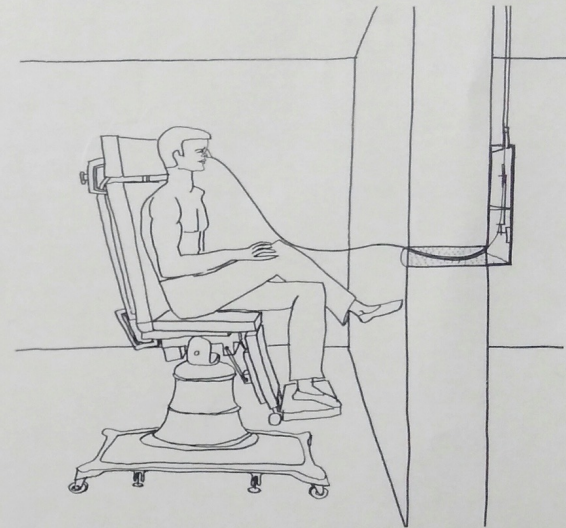


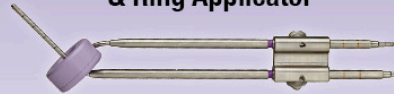
Fig. 1. Remote afterloading of intracavitary nasopharynx applicator.

# Best™ HDR Afterloader



## Best™ Kobold Applicators

Best™ Kobold Tandem & Ring Applicator



Best™ Kobold Fletcher Tandem & Ovoid Applicator



Best™ Kobold Henschke Tandem & Ovoid Applicator





## Krishnan Suthanthiran's Father

Having lost his father to cancer in 1968, Krishnan Suthanthiran launched his Global War on Cancer on April 29, 2015 in memory of him.

# Global War on Cancer

Launched by Best Cure Foundation & TeamBest Companies

While there have been many significant improvements and advancements in medical technologies, many patients around the world do not receive timely interventions or the right care. Mr. Suthanthiran firmly believes more should be done. In 2007, he formed the Best Cure Foundation to work with TeamBest companies, and other leading-edge companies and experts, to establish a Hub-and-Spoke model of healthcare delivery systems to overcome these shortcomings. Best Cure Foundation's goal is to launch a “**Global War on Cancer**” that includes express and mobile clinics linked to general and super-specialty medical centers worldwide.



# Global War on Cancer

Launched by Best Cure Foundation & TeamBest Companies

Mr. Suthanthiran has interacted with those in the private sector and government agencies, in more than 20 countries over the last few years in Asia, South America, the Middle East, and North America. In that time, he has stated, “It is clear that there is a groundswell of support for a better, affordable, and accessible healthcare delivery system globally.”

He has established and acquired a number of medical companies globally, in order to collect many of the technologies needed to establish a Proactive Healthcare Delivery System, focused on transparency of clinical benefits, outcome, and cost using a Total Health Approach – Prevention, Early Detection, and Effective Treatment for Total Cure.







## Krishnan Suthanthiran's Mother

Krishnan Suthanthiran has established a division under BCF called “**3E – Education, Empowerment and Equality**” to promote the development and advancement of women. It is his belief that every man and woman was given birth to, nursed, and nourished by women, and therefore, they share a greater responsibility in juggling career and family, in raising children and caring for the home. In memory of his mother, Krish is proud to support women around the world in pursuing their goals through the 3E organization.



## Best Cure Foundation's aim is to establish:

- Express/mobile clinics and medical centers as non-profit, private, non-governmental organizations that are self sustaining
- Best Cure U.S. Health Corps
- Best Cure International Health Corps
- Best Cure Global Institute
- Best Cure Global Standard of Care
- Best Cure Global Purchasing Organization
- Best Cure Global Insurance



As part of its **Global Healthcare Delivery System**,  
the Best Cure Foundation (BCF) plans to  
establish Proactive, Preventive, Primary Care  
Medical, Dental and Eyecare Wellness Centers.



BCF plans to establish a Cancer Center with GammaBeam 100-80 CM with built in MLC and provide IMRT, 3D-CRT, D-CRT, TD-CRT, SBRT, etc. and offering 24.7 with HDR, Cobalt-60 unit collimator remote offloader.



## The goals of the BCF are to:

1. Provide purified drinking water and affordable sewer systems in every part of the world by 2030,
2. Establish a global standard of healthcare delivery system using a hub & spoke model with express and mobile clinics linked to general and super specialty medical centers, and
3. Reduce suffering/deaths from major diseases such as cardiac, cancer, diabetes, etc. by fifty percent toward the end of the next decade.

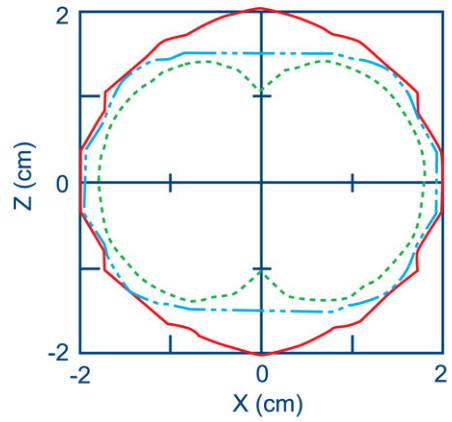


# *Best*<sup>TM</sup> *medical international*

A T E A M B E S T G L O B A L C O M P A N Y

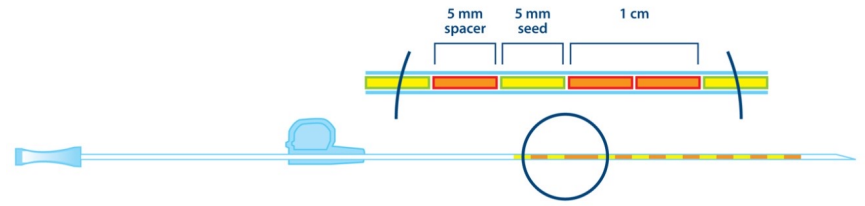


# Best™ Seeds for Brachytherapy



Experimentally Measured Isodose Curves of 20 cGy/h from I-125 Seeds, Best® Model 2300 Series (solid red line), Model 6702 (broken blue line) and Model 6711 (dotted green line)

Ravinder Nath and Anthony Melillo  
 Medical Physics, 20(5), 1480 (1993)



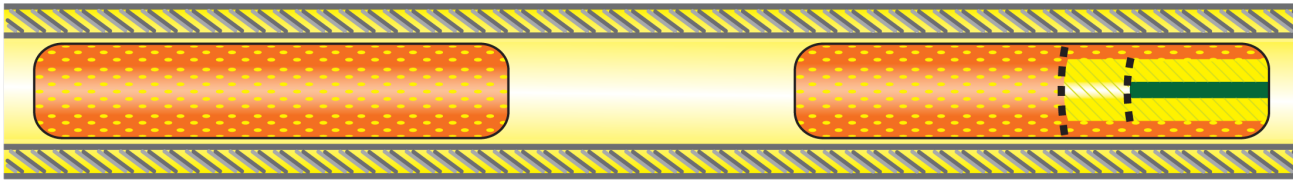
Best™ Iodine-125 Seed



Best™ Palladium-103 Seed



# Best™ Iridium-192 Seeds in Nylon Ribbon



- Seeds are 3.0 mm in length and 0.5 mm in diameter
- 0.37 MeV (average) Gamma Emission Energy
- Half-life of 74.3 days
- HVL (50% attenuation) about 3 mm Lead
- Specific Gamma ray constant 4.6 R cm<sup>2</sup>/mCi/hr
- Custom spacing available



# Best™ Gold-198 Seeds



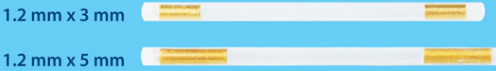
- Seeds are 2.5 mm in length and 0.8 mm in diameter
- 420 keV (average) Gamma Emission Energy
- Metallic Gold pellet encapsulated in Platinum
- Half-life of 2.7 days
- HVL (50% attenuation) about 4 mm Lead
- Specific Gamma ray constant 2.35 R cm<sup>2</sup>/mCi/hr
- Custom activities available

# Best™ Radiopaque Gold Marker Strands

## 1 cm spaced (center to center)



## 2 cm spaced (center to center)



## Stranded single markers

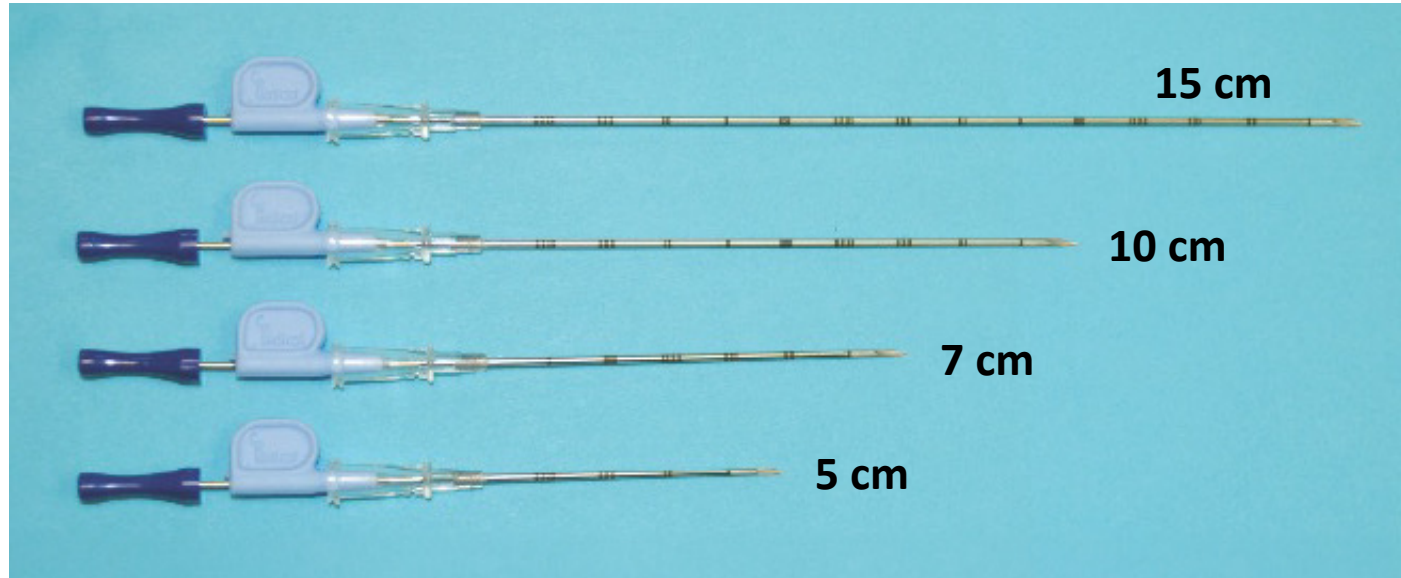


## Custom strands and loose markers are also available!

*All strands pictured have been enlarged from actual size for ease of viewing.*

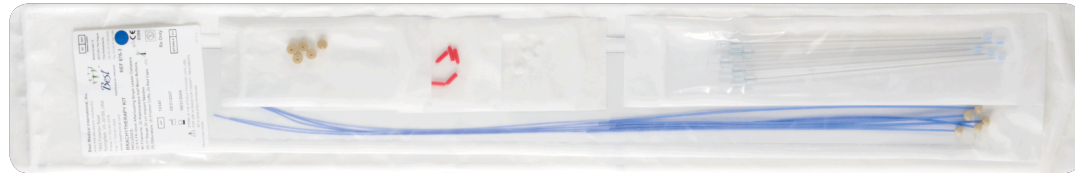


# Best™ Localization Needles



# Best™ Brachytherapy Kit for Interstitial Applications

## Best® Brachytherapy Kit



5 Implant Needles

5 Stylets with Hubs

5 Single Leader Catheters\*



5 Friction Cuffs



5 Red Caps



5 Half Moon Buttons\*\*

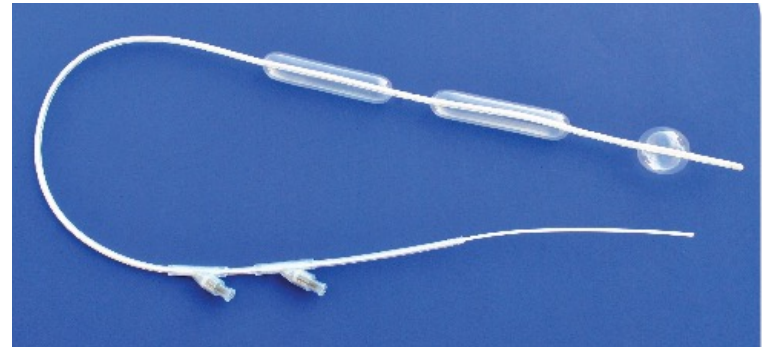
\* Catheter tubes are available in 5 colors (purple, green, yellow, clear or blue) with either radiopaque or clear nylon buttons.

\*\* Half Moon Buttons are available in radiopaque (pictured) or clear nylon.

# Best™ Double-Balloon Breast Brachytherapy Applicator



# Best™ Esophageal Brachytherapy Applicator



# Intravascular Brachytherapy

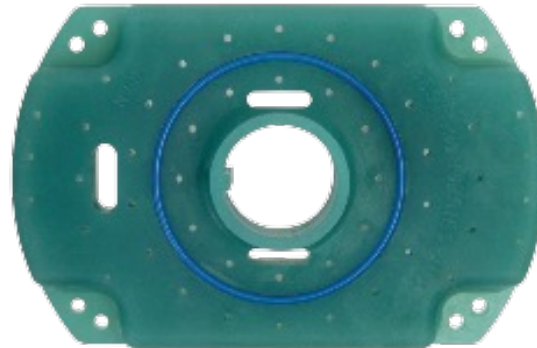
Novoste™  
Beta-Cath™  
3.5F System



# Best™ Templates



Central Rod (Reusable)



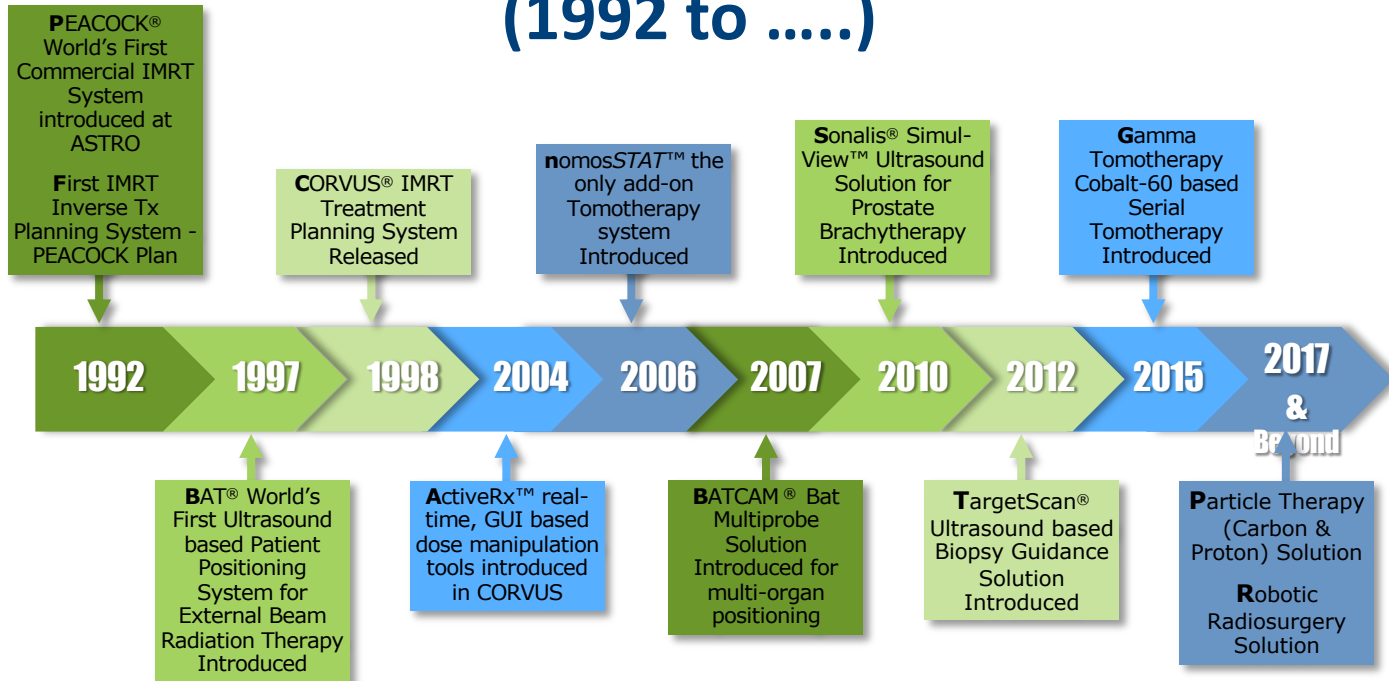
LDR GYN Template (Disposable)



GYN Template (Reusable)

# The Market Revolution Timeline

(1992 to .....







## DEPARTMENT OF HEALTH &amp; HUMAN SERVICES

Public Health Service

JUN 4 1993

Food and Drug Administration  
1390 Piccard Drive  
Rockville, MD 20850Sankara Ramaswamy  
Research Scientist  
Best Industries, Inc.  
7643 Fullerton Road  
Springfield, Virginia 22153Re: K924261/B  
Radioactive Cesium Seeds/Sources  
Dated: April 28, 1993  
Received: April 29, 1993  
Regulatory Class: II  
21 CFR 892.5730

Dear Mr. Ramaswamy:

We have reviewed your Section 510(k) notification of intent to market the device referenced above and we have determined the device is substantially equivalent to devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments. You may, therefore, market the device, subject to the general controls provisions of the Federal Food, Drug, and Cosmetic Act (Act). General controls provisions of the Act include requirements for registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (Premarket Approval) it may be subject to such additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 895. In addition, the Food and Drug Administration (FDA) may publish further announcements concerning your device in the Federal Register. Please note: this response to your premarket notification submission does not affect any obligation you might have under the Radiation Control for Health and Safety Act of 1968, or other Federal Laws or Regulations.

This letter immediately will allow you to begin marketing your device as described. A FDA finding of substantial equivalence for your device to a legally marketed predicate device results in a classification for your device and permits your device to proceed to the market, but it does not mean that FDA approves your device. Therefore, you may not promote or in anyway represent your device or its labeling as being approved by FDA. If you desire specific advice on the labeling for your device, please contact the Division of Compliance Operations, Device Labeling Compliance Branch (HFZ-326) at (301) 427-1342. Other general information on your responsibilities under the Act, may be obtained from the Division of Small Manufacturers Assistance at their toll free number (800) 638-2041 or at (301) 443-6597.

Sincerely yours,

Lillian Yin, Ph.D.  
Director, Division of Reproductive,  
Abdominal, Ear, Nose and Throat,  
and Radiological Devices  
Office of Device Evaluation  
Center for Devices and  
Radiological Health



# CVO-2000 Warming Oven for Thermoplastics

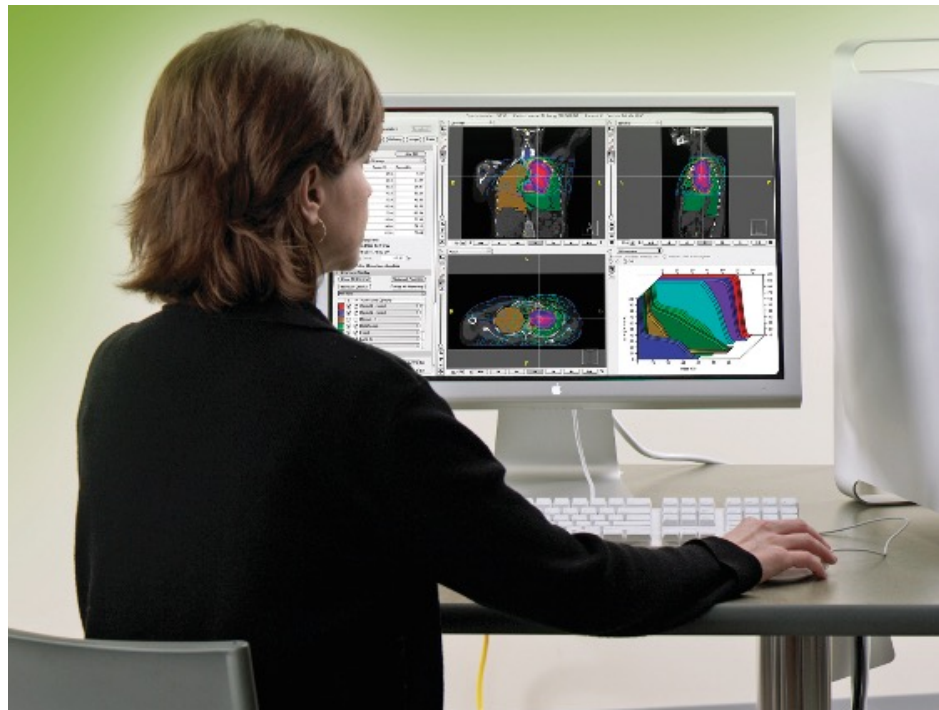


MANUFACTURED AND ASSEMBLED IN THE USA

# Fixed Red or Green Diode Lasers



# Best™ NOMOS Treatment Planning System (TPS)



# AccuBoost<sup>®</sup> Partial Breast Radiotherapy



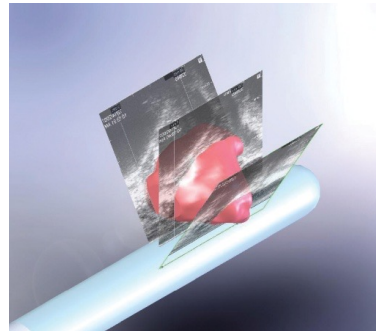
# Raycell® Mk1 and Mk2 X-ray Blood Irradiators



# Best™ NOMOS Precision Stepper-Stabilizer



# Best™ TargetScan Touch™



Certain products shown are not available for sale currently.





Feature	Serial Tomotherapy (nomosSTAT™)	Helical Tomotherapy (Tomotherapy®)	Remarks
Delivery	Serial (slice) tomotherapy delivers a cylinder of radiation by rotating a binary collimator around the patient; then the table is moved a fixed amount and another cylinder is delivered, repeatedly in a serial fashion until the entire region is treated. Beam is off when table is moving.	Helical (spiral) tomotherapy delivers radiation by rotating a binary collimator around the patient with simultaneous movement of the table while the beam is on, delivering a helical, screw-thread type pattern.	Serial tomotherapy allows control of beam intensities for each slice being treated.
Treatments	Coplanar and non-Coplanar treatments (treat difficult tumors by “kicking” the couch)	Coplanar treatments only (as the linear accelerator is in a ring gantry which leads to fixed couch/gantry relationship)	With nomosSTAT you can treat isocentrally and non-isocentrally, an advantage for treatment of tumors in critical locations
Energy	Can be installed on various LINACs with different energies	6 MV photons only	nomosSTAT works with almost any accelerator and Equinox Cobalt-60 Teletherapy system. It is an add on package to upgrade the accelerators.
Service	Can be removed for servicing	Entire system is down	Treatment Systems can be used for conventional therapy with nomosSTAT in service
Cost	\$\$	\$\$\$\$\$	nomosSTAT provides better options at lower cost

# Best™

## Compact SimulView™ Ultrasound Imaging System



# Best™ Compact SimulView™ Ultrasound Imaging System

- Patented probe design with simultaneous imaging of sagittal and transverse planes
- Longitudinal array provides for 140 mm length of view encompassing the bladder, prostate and perineum
- Superior HD Image resolution for improved implant accuracy, speed and physician confidence level
- Advanced drawing and editing tools which include user-defined line widths and colors for fiducial and anatomical markers
- Independent focal zones and frequency selection for sagittal and transverse images
- Advanced modular software design provides for future upgrade path via in-house and independently developed technologies
- System converts from stand-based to desktop without losing any functionality



# Sonalis<sup>®</sup> transducers

## 8L2A Linear Array

**Applications:** Arterial, Carotid, Vascular Access, Venous



## 12L5A Linear Array

**Applications:** Arterial, Breast, Carotid, Dialysis Access, Lung, Neonatal Hip, Nerve Block, Ophthalmic, Testes, Thyroid, Vascular Access, Venous



## 14L3 Linear Array

**Applications:** Arterial, Breast, Carotid, Dialysis Access, Lung, MSK, Neonatal Hip, Nerve Block, Ophthalmic, Testes, Thyroid, Vascular Access, Venous



## 15LW4 Linear Array

**Applications:** Arterial, Breast, Carotid, Dialysis Access, Lung, MSK, Neonatal Hip, Nerve Block, Ophthalmic, Testes, Thyroid, Vascular Access, Venous

**Biopsy Kit Available**



## 15LA Linear Array

**Applications:** Arterial, Breast, Carotid, Dialysis Access, Lung, MSK, Neonatal Hip, Nerve Block, Ophthalmic, Testes, Thyroid, Vascular Access, Venous

**Biopsy Kit Available**



## 15L4A Linear Array

**Applications:** Arterial, Breast, Carotid, Dialysis Access, Lung, MSK, Neonatal Hip, Nerve Block, Ophthalmic, Thyroid, Vascular Access, Venous



## 16L5 Linear Array

**Applications:** Breast, Lung, MSK, Nerve Block, Vascular Access

**VET Biopsy Kit Available**



## 8V3 Phased Array

**Applications:** Cardiac



## 4V2A Phased Array

**Applications:** Cardiac, FAST, TCD



## 5C2A Curved Array

**Applications:** Abdominal, FAST, Fetal Cardiac, MSK, OB/GYN, Renal, Thyroid, Visceral

**Biopsy Kit Available**



## 9MC3 Curved Array

**Applications:** Abdominal, Cardiac, Neonatal Head, Small Parts, Thyroid, Vascular Access



## 8EC4A Endocavity

**Applications:** OB/GYN, Prostate

**Biopsy Kit Available**



## XY-BI-Plane Phased Array

**Applications:** Cardiac, Vascular, Lung



## 10EC4A Endocavity

**Applications:** OB/GYN, Prostate

**Biopsy Kit Available**



## 10BP4 Bi-Plane

**Applications:** Prostate



## 8BP4 Bi-Plane

**Applications:** Prostate



## 8TE3 Trans-esophageal

**Applications:** Motorized Adult Multiplane TEE Probe



## Pedoff

**Applications:** Cardiac



## 16HL7 High Frequency Linear Array

**Applications:** MSK, Venous

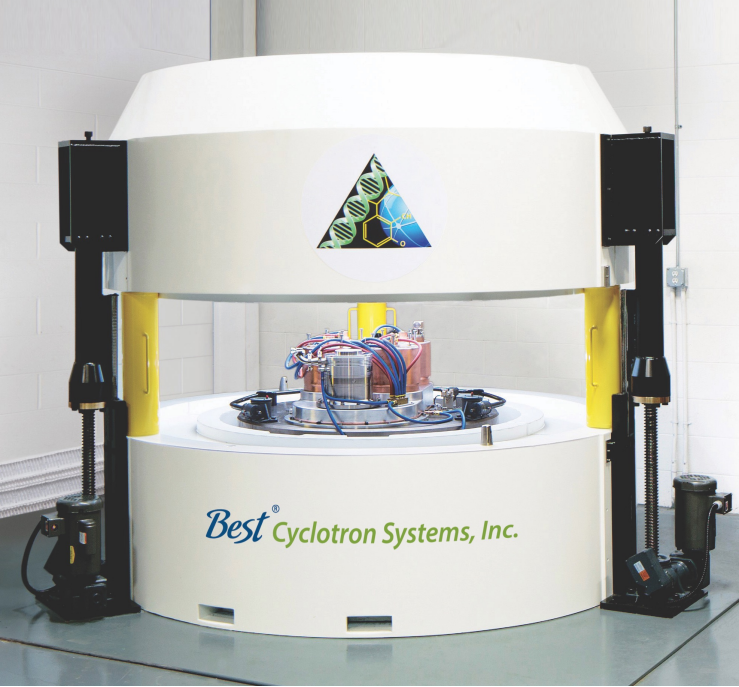


# Best™ Cyclotron Systems

A T E A M B E S T G L O B A L C O M P A N Y

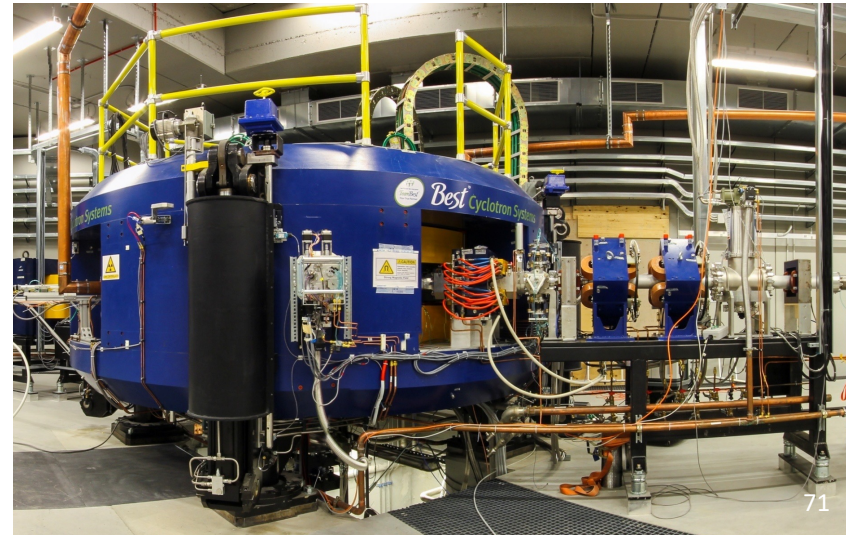


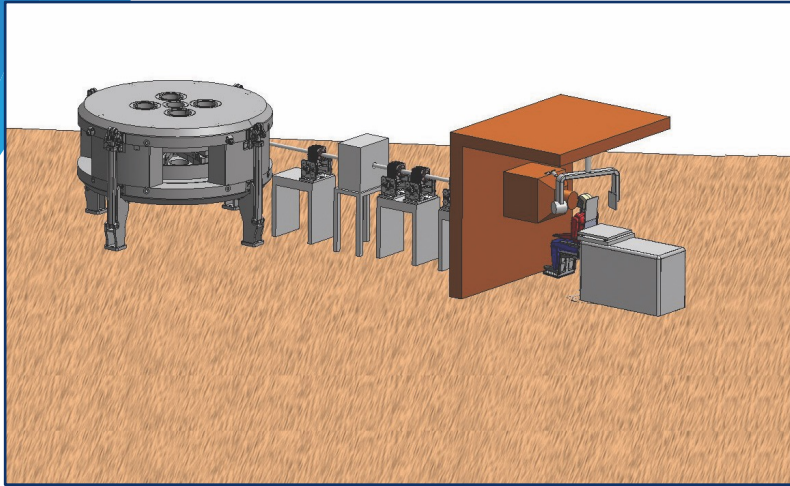
<b>B100 Cyclotron</b>	7.5 MeV	<ul style="list-style-type: none"> <li>• Capable of producing: <math>^{18}\text{F}</math>FDG and <math>\text{Na}^{18}\text{F}</math></li> <li>• Single or batch dose production</li> <li>• Integrated self-shielded cyclotron, chemistry module and FDG QC module</li> <li>• Complete production lab in a 5 x 5 meter area</li> </ul>
<b>BG-95 Cyclotron</b>	1-9.5 MeV	<ul style="list-style-type: none"> <li>• Low energy, self-shielded compact system capable of producing: <math>^{18}\text{F}</math>FDG, <math>\text{Na}^{18}\text{F}</math>, <math>^{18}\text{F}</math>-MISO, <math>^{18}\text{F}</math>FLT, <math>^{18}\text{F}</math>-Choline, <math>^{18}\text{F}</math>-DOPA, <math>^{18}\text{F}</math>-PSMA, <math>^{13}\text{N}</math> and <math>^{68}\text{Ga}</math></li> </ul>
<b>Best Cyclotrons</b>	1–3 MeV	<ul style="list-style-type: none"> <li>• Deuterons for materials analysis*</li> </ul>
	70-200 MeV	<ul style="list-style-type: none"> <li>• For Proton Therapy*</li> </ul>
	3–90 MeV	<ul style="list-style-type: none"> <li>• High current proton beams for neutron production and delivery*</li> </ul>
<b>B6-15 Cyclotron</b>	1–15 MeV	<ul style="list-style-type: none"> <li>• Proton only, capable of high current up to 1000 Micro Amps, for medical radioisotopes</li> </ul>
<b>B25 Cyclotron</b>	20, 15–25 MeV	<ul style="list-style-type: none"> <li>• Proton only, capable of high current up to 1000 Micro Amps, for medical radioisotopes</li> </ul>
<b>B25u–35adp Cyclotron</b>	25–35 MeV	<ul style="list-style-type: none"> <li>• Proton or alpha/deuteron/proton, capable of high current up to 1000 Micro Amps, for medical radioisotopes</li> </ul>
<b>B35 Cyclotron</b>	15–35 MeV	<ul style="list-style-type: none"> <li>• Proton only system for medical radioisotopes production</li> </ul>
<b>B70/70adp Cyclotron</b>	35–70 MeV	<ul style="list-style-type: none"> <li>• Proton only or alpha/deuteron/proton systems, capable of high current up to 1000 Micro Amps, for medical radioisotopes</li> </ul>



## Best™ Model BG-95 Sub-Compact Self-Shielded Cyclotron w/Optional Second Chemistry Module & Novel Target

## Best™ 70 MeV Cyclotron at INFN, Legnaro, Italy

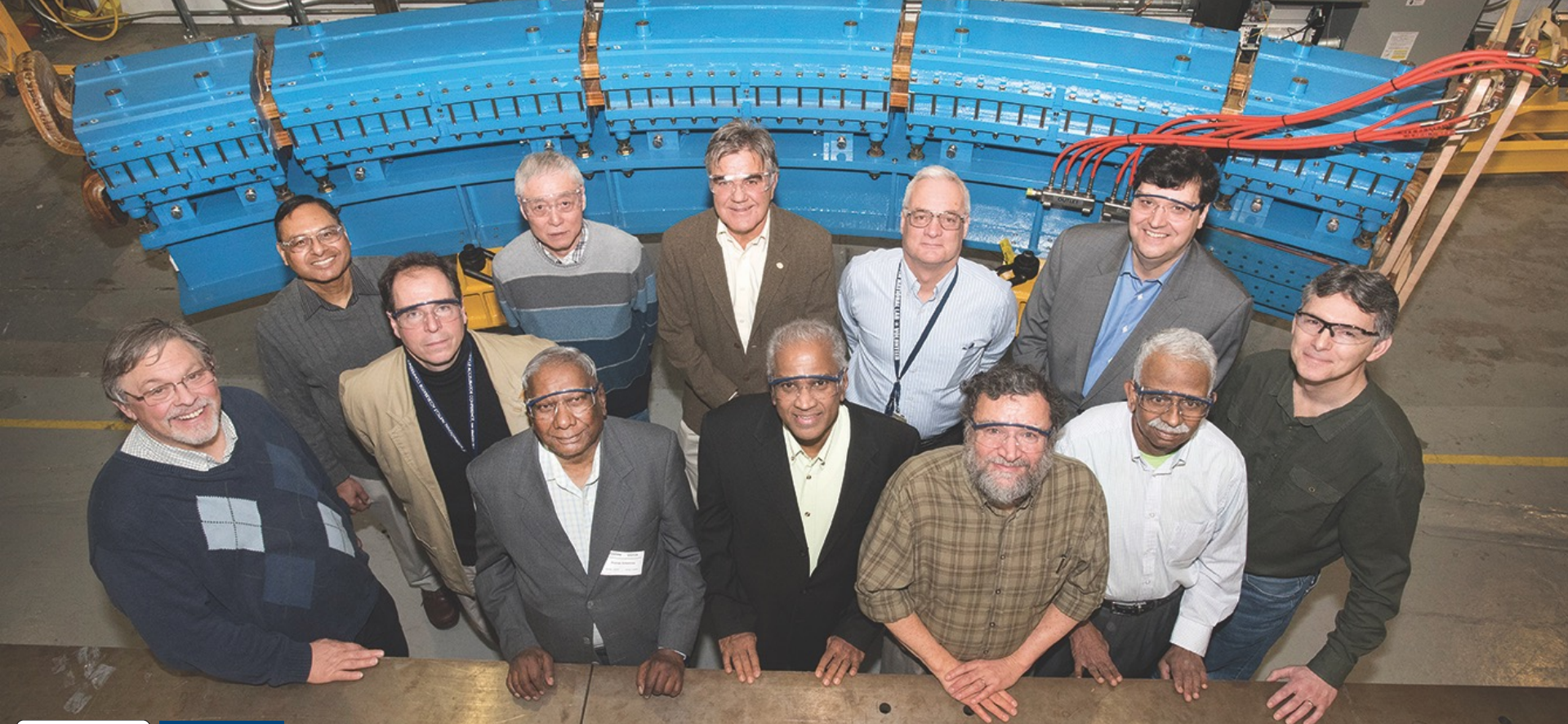




## Best Model 200p Cyclotron for Proton Therapy *(Patent Pending)*

- From 70 MeV up to 200 MeV Variable Energy
- Dedicated for Proton Therapy with two beam lines and two treatment rooms
- For all Medical Treatments including: Benign and Malignant Tumors, Neurological, Eye, Head/Neck, Pediatric, Lung Cancers, Vascular/Cardiac/Stenosis/Ablation, etc.





# iRCMS Magnet at BNL



# Best<sup>TM</sup> Theratronics

A T E A M B E S T G L O B A L C O M P A N Y



# Best GammaBeam™ 300-100 CM Equinox™ Teletherapy System with Avanza 6D Patient Positioning Table

## **NEW!** Multi-Leaf Collimator for 80 and 100 cm SAD units— IMRT, IGRT, SRS, SBRT and Tomotherapy capable with ActiveRx

- **Machine Verification:** Parameters Set and Actual are continually monitored by the machine to ensure accuracy.
- **Asymmetric Jaws:** Partial fields capable without manual blocking. This feature saves time and reduces the handling requirements of manual block trays.
- **Auto Setup:** One-button setup and patient loading decreases the time required to prepare patients for treatments.
- **Motorized Wedges:** 60° Wedge moves in and out of field allowing therapists to block fields simply and effortlessly.

\*Certain products shown are not available for sale in all countries. © 2023 Best Global Companies

# GammaBeam™ 300-100 CM Equinox™

- High activity sources  
1.5 or 2 cm diameter
- 390 cGy/min at 80 cm
- 250 cGy/min at 100 cm
- Asymmetric collimators
- Auto Set-Up
- Physical Wedges  
(15, 30, 45 and 60 degrees)
- Collision Detection
- Service Diagnostics
- Motorized Wedge  
(1 to 60 degrees)
- Wedge and Block Code  
Interlock
- Fixed Beam and Arc  
Treatment
- Beam Stopper Option
- In-Room Monitors
- On-board Treatment  
Verification
- Ergonomic Hand Control
- Dual Computer Control  
System
- Graphical Data Entry  
Interface

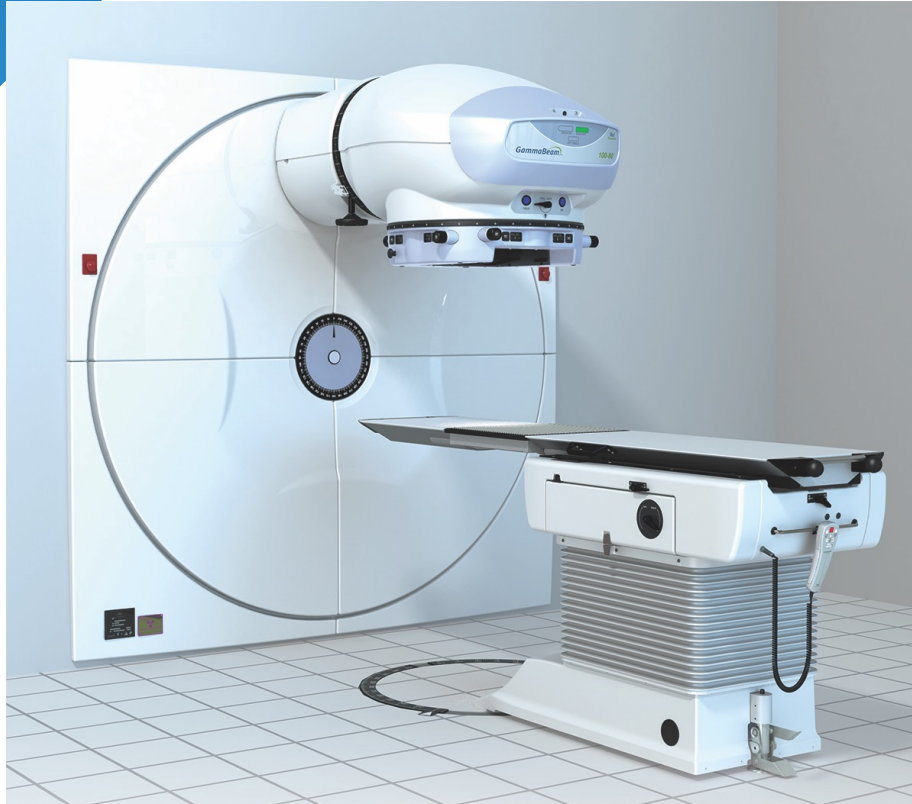
# Avanza™ Patient Positioning Table

The **Avanza™ Patient Positioning Table** demonstrates a high level of stability and accuracy for treatment techniques that require precision.



- Accurate and reproducible patient positioning
- Better than 2 mm positioning accuracy
- Efficient and comfortable patient set-up
- Flexible set-up with “zero” position
- Streamlined set-up with free-float and automated motions
- Kevlar mesh reduces surface dose buildup

# GammaBeam™ 100-80 CM



The **GammaBeam™ 100-80 CM** is a highly practical model of the GammaBeam family of External Beam Therapy System (EBTS). Convenience and safety, combined with simplicity of design, make it easy to use and easy to maintain. Particularly appropriate for treatment centers requiring extended hours of daily operation and where budgetary considerations are a major concern.



## Total Body Irradiator GammaBeam™ 500

The **Total Body Irradiator GammaBeam™ 500** is a teletherapy unit designed to produce a large fixed rectangular radiation field at an extended source-to-skin distance in order to deliver total body irradiation. The unit can also be used for research and dosimetry purposes. Features include: dose rate up to 40 cGy/min at 2.5 m in air, record and verify and imaging capabilities, graphical touch screen data entry interface and motorized vertical motion of the head.



# Comparative Analysis of $^{60}\text{Co}$ Intensity-Modulated Radiation Therapy

*Christopher Fox, H Edwin Romeijn, Bart Lynch, Chunhua Men, Dionne M Aleman, and James F Dempsey*  
Phys Med Biol. 2008 Jun 21;53(12):3175-88.

**Abstract:** In this study, we perform a scientific comparative analysis of using  $^{60}\text{Co}$  beams in intensity-modulated radiation therapy (IMRT). In particular, we evaluate the treatment plan quality obtained with (i) 6 MV, 18 MV and  $^{60}\text{Co}$  IMRT; (ii) different numbers of static multileaf collimator (MLC) delivered  $^{60}\text{Co}$  beams and (iii) a helical tomotherapy  $^{60}\text{Co}$  beam geometry. ... The results of the investigation demonstrate the potential for IMRT radiotherapy employing commercially available  $^{60}\text{Co}$  sources and a double-focused MLC. Increasing the

number of equidistant beams beyond 9 was not observed to significantly improve target coverage or critical organ sparing and static plans were found to produce comparable plans to those obtained using a helical tomotherapy treatment delivery when optimized using the same well-tuned convex FMO model. While previous studies have shown that 18 MV plans are equivalent to 6 MV for prostate IMRT, we found that the 18 MV beams actually required more fluence to provide similar quality target coverage.



For the full article, please visit [www.gammatherapy.com](http://www.gammatherapy.com)



# Cobalt-60: An Old Modality, A Renewed Challenge

*Jake Van Dyk and Jerry J. Battista*

Current Oncology, November 1995

**Abstract:** The discovery of x-rays and radioactivity 100 years ago has led to revolutionary advances in diagnosis and therapy. However, it was not until the middle of the twentieth century that megavoltage photon energies became available through the use of betatrons, cobalt-60 gamma rays and linear accelerators (linacs). The increased photon penetration and skin sparing provided radiation oncologists with new opportunities for optimizing patient treatments. In recent years, several reports have considered various issues which define the “optimum” photon energy for the treatment of malignant disease. In many of these articles, cobalt-60 is mentioned although it is generally not recommended for radiation therapy departments in the western world. Indeed, many now consider cobalt-60 as an old modality

that is only useful for palliative treatments in a large department or for developing countries with limited technical resources. ... In this commentary, we ... briefly review the arguments that have been presented both for and against the use of cobalt-60 as well as add some up-to-date insights and perspectives. Undoubtedly, we will not resolve this debate for all clinical situations. However, we hope that by putting “*all* the cards on the table”, the cobalt-60 option will be viewed from a fairer perspective than we have seen in recent years of rapidly advancing accelerator technology. Furthermore, we also make some recommendations for the designers of cobalt-60 technology so that modernized units can be made more attractive for today’s radiation therapy facility.



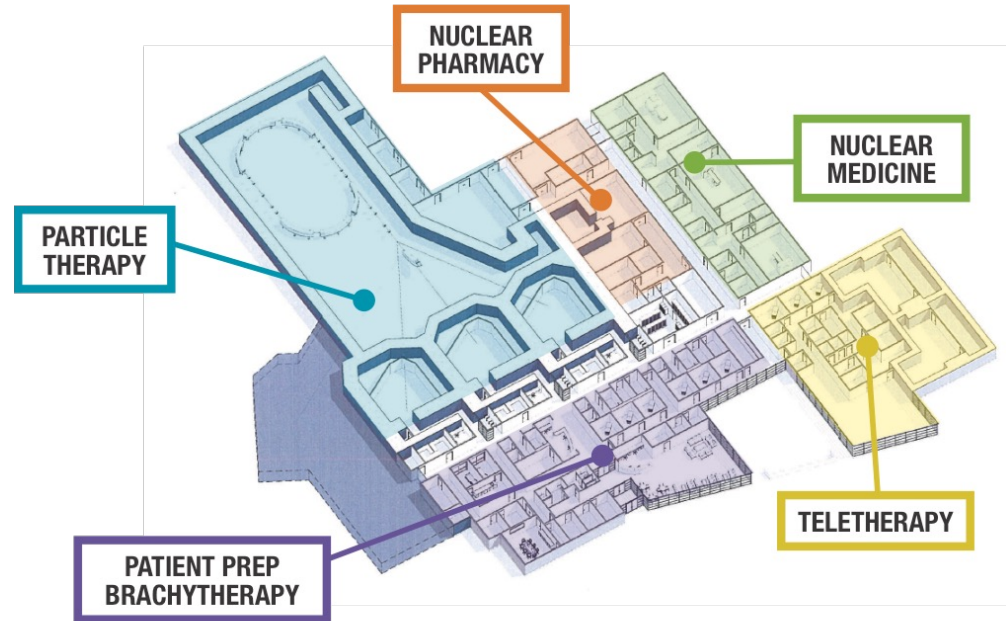
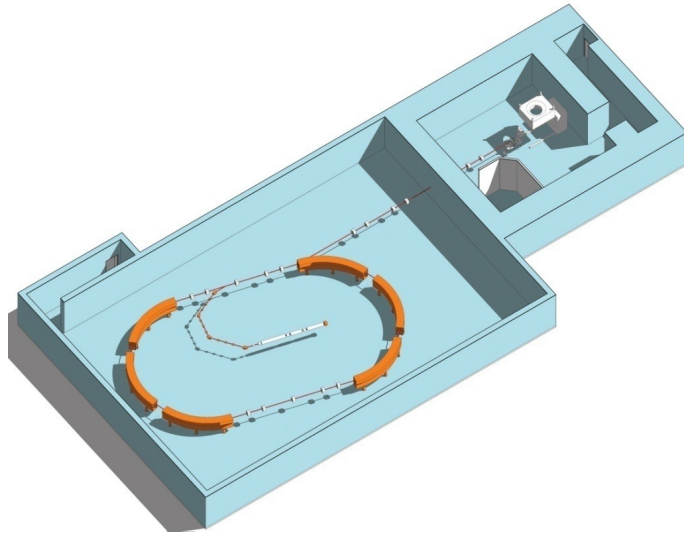
For the full article, please visit [www.gammatherapy.com](http://www.gammatherapy.com)

# Best<sup>TM</sup> Particle Therapy

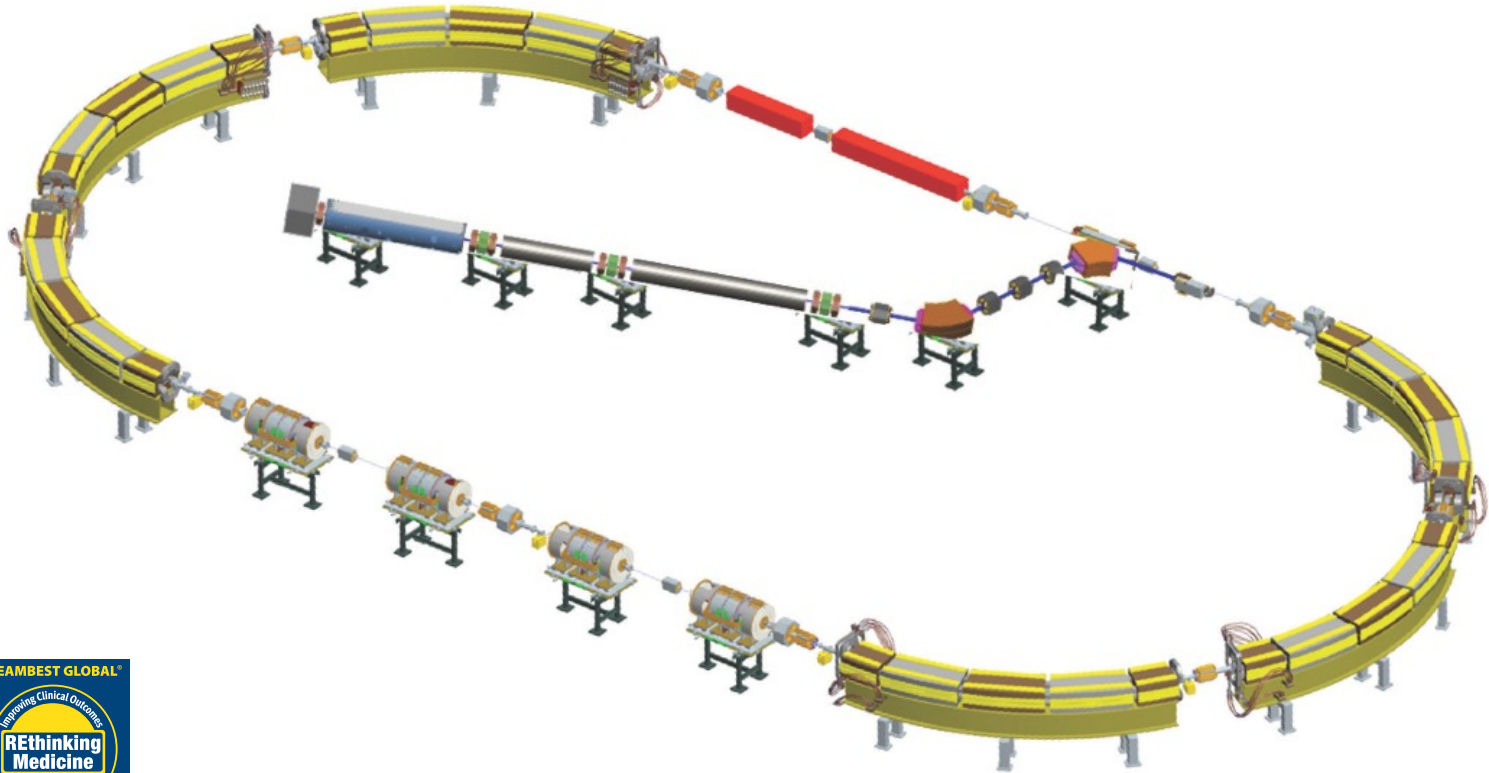
A TEAMBEST GLOBAL COMPANY



# Expandable from Single-Room to Multi-Room



# Racetrack Synchrotron



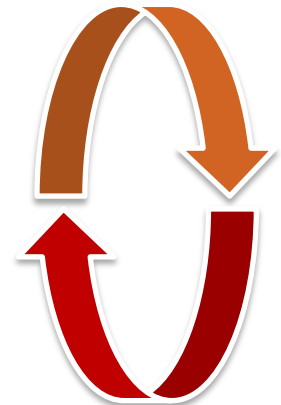
# State of the Art Manufacturing Facilities



**Best NOMOS (Pittsburgh, PA) &  
Best Theratronics (Ottawa, ON)**



**Assembly**



**Heavy Manufacturing**

# Future Development Flash Therapy





# Best™ Integrated Radiotherapy Solutions



X-Beam™ Image-Guided  
Multi-Energy Linac System



X-Beam™ Robotic  
Radiosurgery System



E-Beam™ Robotic IORT  
Linac System

# The Future of Flash Radiation Therapy

Flash Therapy, first known as Intra Operative Radiation Therapy (IORT), was initiated in the late 1960s by doctors in Japan. IORT is now commonly referred to as Flash Therapy. Doctors in Japan performed the surgery and radiation therapy in two separate locations.

In 1975, at Howard University Hospital in Washington, DC, **the late Dr. Ulrich K. Henschke and his team—which included Dr. Krishnan Suthanthiran, President/Founder of TeamBest Global Companies—became the first to perform both procedures in the same room, advancing Flash Radiation Therapy.**

TeamBest Global Companies plan to introduce a new version of the IORT System/Flash Therapy, utilizing a robot. It's noteworthy that this is the first time a robot has been used, and Best Medical International holds a patent for this Robotic Electron Linac.

***Please visit [www.teambest.com](http://www.teambest.com) to find out more.***



**FLASH THERAPY IN 1975**



**FLASH THERAPY NOW**



# UPGRADE Kit for Theratron Systems




## UPGRADE includes:

- Removing all old controls, electronics and installing a new control system and covers
- Replacing the old collimator system with the new Equinox collimator
- Replacing the old treatment table with the new Avanza™ Table
- Retaining the head rotation capability is optional

## UPGRADE features:

- Calculated Arc Speed
- Graphical Control System
- Asymmetric Jaws *(optional)*
- R&V System Ready *(optional)*
- Service Log Files
- On-Board Verification
- Motorized Wedge *(optional)*
- Collision Detection *(optional)*



For more information about  
Krishnan Suthanthiran,  
the Best Cure Foundation or TeamBest  
Global Companies, please visit  
**[www.teambest.com](http://www.teambest.com)**

# Thank You

